

Clinical Medicine and Surgery

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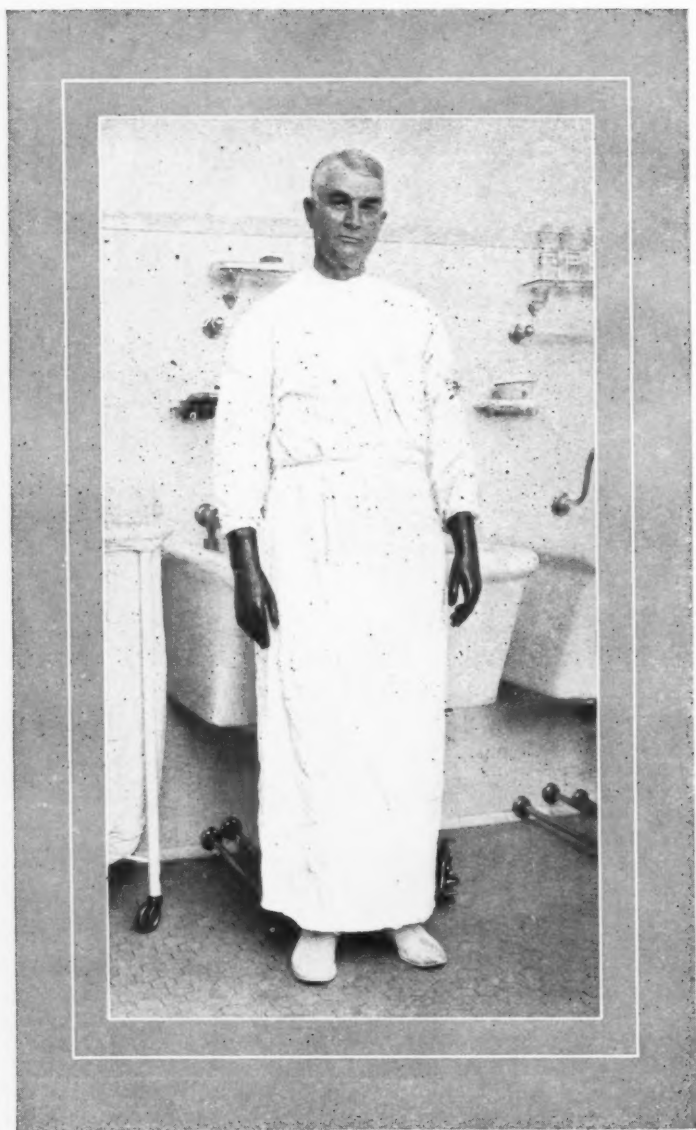
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10



WILLIAM J. MAYO
M.D., A.M., D.Sc., LL.D., F.A.C.S., Etc.

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Dr. William James Mayo

ON June 29, 1861, at LaSeur, Minnesota, a son, William James Mayo, was born to Dr. William Worrell Mayo and his wife, Louise Abigail, *nee* Wright. Two years later, the family removed to Rochester, Minnesota, which has been the Mayo home ever since.

Young William was sent to the public schools in his new home and thereafter attended the Rochester High School and Niles Academy. Upon the completion of his preparatory education, he decided to follow in his father's footsteps and accordingly took up his medical studies at the University of Michigan, from which institution he was graduated as a Doctor of Medicine in 1883.

Being now a full-fledged physician, Dr. Mayo returned to Rochester and entered upon the practice of medicine with his father. This group was augmented, five years later, by the association of his younger brother Charles.

William did not feel, however, that his education was finished with the obtaining of the coveted "sheep skin". From boyhood he had learned that education is a constantly progressive process, as his wise and energetic father had early inculcated studious habits and had insisted that both of his sons familiarize themselves, by personal

contact, with all the minutiae of the work of the profession they were to follow. In 1889 he received the degree of Master of Arts from his Alma Mater, and later did extensive postgraduate work at Harvard University and at Trinity College, Dublin, and other European schools.

A year after his graduation in Medicine (1884), Dr. Mayo married Miss Hattie M. Damon.

In 1888 he assisted his father in drawing up the plans for St. Mary's Hospital, and when that institution was opened, the next year, though the elder Dr. Mayo was appointed Chief of Staff, the actual operative surgery was largely performed by Dr. William and his brother, Dr. Charles, who had just been graduated from the Chicago Medical College.

The world-renowned Mayo Clinic was opened in Rochester in the same year with St. Mary's Hospital (1889), and the strenuous labors connected with these two institutions kept the father and his two sons rather more than busy for a number of years, for "modern conveniences" were little known in those days and all of the routine work, as well as the operative surgery, had to be done by these three energetic and capable men. Truly, fame does not come by accident!

The outstanding character of Dr. Will Mayo's professional work was first recognized by his election as president of the Minnesota State Medical Society, in 1895. Since then all sorts of honors have come to him. He has been president of the American Medical Association, the Society of Clinical Surgery, the American Surgical Association, and the American College of Surgeons, and a regent of the University of Minnesota since 1907.

Several medals have been awarded to Dr. Mayo for his researches in surgery, and he has been made a Fellow of the Royal College of Surgeons of Scotland, England and Ireland, as well as being an officer or member of most of the leading foreign surgical societies. Degrees have been conferred upon him by the Universities of Michigan, Toronto, Maryland and Pennsylvania and by Columbia University.

In 1915, he and his brother, Charles, contributed \$1,500,000 to establish the Mayo Foundation for Medical Education and Research, in affiliation with the University of Minnesota, and in 1919 the Mayo Properties Association was organized, thus insuring the permanence of the institution for public service.

Dr. Mayo was commissioned first lieutenant in the Medical Reserve Corps of the Army in 1912. When hostilities began, in 1917, he was immediately advanced to the grade of major, and, in 1918, to that of Colonel. He and his brother, cooperating with the University of Minnesota, organized Base Hospital No. 26. During the period of the war the two brothers, William and Charles, alternated as chief consultant for all the surgical services of the Army. In 1919, Dr. William was awarded the Distinguished Service Medal, and in 1921 he was commissioned a Brigadier General of the Medical Reserve Corps.

It would be superfluous to attempt to enlarge upon Dr. Mayo's professional reputation, for it is known in all quarters of the globe. He has contributed more than 300 articles to medical literature, and the publications of the Mayo Clinic and of the men who have been trained there would fill many volumes. He is known, not only as one of the most competent and dexterous operators of all time but as a research worker whose studies have materially advanced the science and art of surgery.

Such pictures of the Doctor as the one herewith have rarely been published, but the pose and surroundings will appear

familiar to the scores and hundreds of physicians who have gained knowledge and inspiration from the teaching and example of this man.

A fool is honored in his own house; a proprietor is honored in his own village; a king is honored in his own country; a learned man is honored everywhere.—Sanskrit Proverb.

OUR CHANGE OF NAME

You will, no doubt, have noticed the change of name on the cover of this month's journal, and you will, very likely, have realized that the changed designation more nearly describes the contents of the periodical than it did before, as we have been running the *Surgical Seminar* for a number of years and surgical articles are appearing in almost every number.

The new name, therefore, implies no change of policy. We shall continue to use our utmost endeavors to offer you, each month, such material as will be of the greatest possible assistance to you in the consulting room and at the bedside, and also to call to your attention such matters as may be helpful in your all-around development as a physician, a citizen and a human being.

We shall still continue to offer you every possible personal service in dealing with your own daily problems, and we still earnestly desire and request that you will use the columns of this, *your journal*, for reporting your interesting and profitable experiences in all matters pertaining to your practice, for the benefit of your co-laborers in the glorious work of relieving the sick and suffering. The more you co-operate with us, the better will the journal be.

Tell us how we can serve you better. Give us your loyal support and we will make CLINICAL MEDICINE AND SURGERY the greatest and most valuable medical periodical in the world.

Intelligence can not act effectively without conviction.—Dr. Horace Carnross.

PREPARED MINDS

A philosopher, whose name doesn't matter in the least, once uttered the pregnant phrase, "New ideas come only to prepared minds."

Newton is said to have seen an apple fall from a tree, immediately after which he formulated his theory of gravitation which we now recognize as a law. It is, however, quite obvious that the falling of

the apple, by itself, could not have been sufficient inspiration to bring about such a stupendous result. Thousands of people, through the centuries, had seen apples fall from trees, but none of them evolved the laws of gravitation from this phenomenon.

Why was it that Newton was able to sense great significance behind so small an occurrence? It was because, for years, he had been studying all that was then known about the relations of the heavenly bodies to the earth and to each other, as well as the nature and causes of the attraction which was observed between the earth and objects upon its surface. He had meditated long and deeply upon these matters. *His mind was prepared!* The fall of the apple was merely the insignificant trigger that fired the long train of thought, as a small cord will release from the mouth of a great gun a projectile whose fabrication may have required weeks and months.

It is recorded that James Watt noticed that the steam lifted the lid of the family tea-kettle and proceeded at once to invent the steam engine. But the wonderful idea which changed the progress of our civilization did not come all at once, like that. The moving kettle lid was a tiny *physical* fact which hooked up with a mountain of *mental* facts in the inventor's brain and started the whole mass into purposeful motion. *His mind was prepared!*

We wonder, sometimes, how a Pasteur, a Harvey, a Sims, a Priestley, or a d'Herelle have been able to come to the momentous conclusions which have made such a difference to humanity. It was because they had familiarized themselves with all that other men had done along some particular line, and had then given free rein to their active, fertile, and *instructed* imaginations to follow the path beyond the rim of the world of known things into the realm of the yet-to-be-discovered. After such a voyage it needed only a small physical happening to link up the known with the unknown and precipitate the products of their unseen mental labors into the world of palpable, material things.

If we aspire to add something to the total store of human knowledge we must first decide along what line our efforts are to be directed, else we shall waste much labor. Next, we must study diligently the reports of others who have worked along the same line, in order to have a definite idea as to where the border of the "known" really lies. After that we must, with a clear and controlled mind, follow straight along the

beaten road until we come to its end, and then continue boldly forward into the domain of the *probable* and, returning, ponder well what we have seen and determine how we can make our dreamings concrete and workable.

It is a long road, a slow road, a difficult road, and few there be who care to travel it with toil and sweat; but those who set their feet upon it find a joy, an uplift, an inner satisfaction and happiness which words are inadequate to describe. And, when they reach the successive summits of realization and *knowledge*, the view is wonderful!

Would we be numbered among those who lift the race a little higher on the age-long path of evolution, we must *elect* a life of labor (which will not weary us) and of temporary failures (which will not discourage us) and of sincere and thorough *preparation*, for—"New ideas come only to prepared minds."

Is a lamp pleasing to the blind, a song to the deaf, or science to the fool?—Sanskrit Proverb.

The use of intelligence to produce results in ourselves, beyond what our unthinking experience has brought forth, is not only possible but presents the greatest means of future development.—Dr. Horace Carnross.

PROGRESS IN THE SCIENCE AND ART OF MEDICINE

At the beginning of a new year it is often helpful to pause for a short while and glance backward to get a panoramic view of the territory recently traversed. Such a retrospect makes a good basis for the renewed effort we all plan to put forth during the coming year.

This year we have again been fortunate in securing for our readers authoritative statements regarding progress in certain lines, written by men who are recognized leaders in their respective fields. We have also included several articles dealing with new ideas in therapeutics and other fields of medical interest, so that we feel this to be one of the most interesting and valuable numbers we have ever published.

At this time and place we purpose to review, very briefly, the progress which has been made and the changes of opinion which have taken place in various lines of medical activity. The importance of these various considerations is, of course, a matter of opinion and, while we have selected those items which seem, to us, to be of the most general interest, we may have overlooked some vital matters. If you notice any such omissions, please tell us and we will try to rectify the error later.

The Use of Drugs

The "therapeutic nihilism" which was so prevalent twenty years ago is giving place to a healthy but discriminating optimism regarding the use of drugs, particularly since the beginning of the interest in chemotherapy by parenteral administration.

Insulin is now no longer regarded as being a cure for diabetes, and the dangers from its careless administration are being more recognized. It has, however, saved scores and hundreds of lives, when given in properly selected cases, and its increasing use—with or without the simultaneous administration of dextrose—in certain cases of *toxemia* and *malnutrition* bids fair to open a new field of usefulness for this interesting substance. It is not so efficient in cases of *marasmus* and post-anesthetic vomiting.

Hexylresorcinol, introduced by Veeder Leonard, in 1924, and heralded by the papers as a probable agent for the long-sought *therapeutica sterilisans magna*, has proved to have a field of usefulness far less wide than was at first hoped. It is, however, of distinct value in *mild*, chronic infections of the genitourinary organs with colon bacilli and, especially, with gram-negative cocci, but not with gonococci. Cases must be selected carefully on the basis of bacteriologic findings.

In treating the same class of conditions, *salihexin* is giving excellent results, in the hands of a number of capable workers.

Parathyrin is found to require twelve hours or more to produce its characteristic effects. It is producing good results in chronic cases and in metabolic disorders but acts too slowly to be of value in combating the convulsions of tetany, in which condition ammonium chloride and calcium act better. (See Dr. Achard's article.)

Pituitary Extract has been found to increase uterine contractions without increasing the tone of the muscles, if given in just sufficient doses. Too large doses may cause uterine spasm. Give minimal doses at first and increase them carefully, as needed.

Luminal is useful in many cases of epilepsy, especially where the attacks are mild and infrequent, but it is dangerous when used as a hypnotic and should be dispensed only on a physician's prescription.

Quinidine is of definite value in auricular fibrillation, 50 percent of cases recovering under its use. Success depends, however, upon careful study of the cases and regu-

lation of the dosage. It is a drug for the use of experts, in hospital practice, and not for practitioners.

Novasurol is another drug for use by especially trained men, in hospitals. When a careful check can be kept on the body chemistry it has given great relief in many cases of edema, especially those due to circulatory disturbances and hepatic cirrhosis. The chemical problems involved in its use are very complicated and, for the practitioner, *apocynum* is safer and is very satisfactory.

Mercurochrome is found most useful in acute or subacute infections with bacilli or cocci. It is of less value in chronic infections and of little or none where gonococci are involved. Its intravenous use is attended with many toxic reactions, due to the narrow margin between therapeutic and poisonous doses. It is not a drug for parenteral use by practitioners.

In the same field of usefulness, *Metaphen* is giving good results in the hands of many workers. It is a very powerful antiseptic for all external uses, especially, some believe, in gonorrhea, and, intravenously, it is decidedly less toxic than other similar compounds. All of the organic mercurials should be used parenterally with the greatest care and judgment.

Cinchophen and *Neocinchophen* are now believed to have a direct curative effect upon true rheumatism, and their deleterious effects are decidedly less than those of the salicylates.

Ephedrine is a new vegetable alkaloid which bids fair to replace epinephrin for many of the conditions in which that drug has been used. It is effective, when given by mouth, in many cases of asthma and hay fever. Locally, in the nose and throat, it promptly depletes engorged tissues, and its use is not attended by the severe reactions which follow that of epinephrin. (See CLIN. MED., Aug., 1926, p. 537.)

Another interesting new drug is *Amidozyl* which was described in CLIN. MED. for October, 1926, p. 700. Several careful workers have reported surprising results following its use in cases of chronic deforming arthritis. It will bear careful watching.

Liver Extracts, for the reduction of essential hypertension, have excited much interest and clinical reports are beginning to accumulate. It is a bit early to speak with positiveness as to its value, but results, so far, are encouraging.

Extracts of the Sex Glands are coming to be looked upon more sanely. Their beneficial

effects are by no means confined to restoration of waning sexual powers, but they seem able to stimulate the general metabolism so as to increase the efficiency of elderly people along all lines. Several new preparations are now offered, with sufficient research behind them to warrant extensive clinical trial.

Dextrose, or glucose, is being widely employed, intravenously, in various toxemias and seems to be of distinct value. One must be sure to obtain a pure and sterile product whose acid index is as low as possible. (See CLIN. MED. July, 1926, p. 458).

Neutral Acriflavine gave the best results as a preoperative antiseptic for the skin, in a series of tests recently reported. The solution used was 5 percent in 50 percent alcohol. This killed everything except anthrax spores, on the surface, and penetrated the deeper layers of the skin, killing all organisms. The skin should be scrubbed with soap and water, shaved and freed from fats by using ether or alcohol. The acriflavine solutions should always be freshly prepared.

Sanocrysin (gold-sodium thiosulphate) is still being tested clinically in the treatment of tuberculosis, but there seems to be no unanimity of opinion regarding its value. The present tendency is to begin with very small doses and increase them gradually to moderate size. The massive doses first recommended and the use of immune serum to prevent reactions seem to be discredited. This is a drug to be used in selected cases by experts, in hospitals and sanatoria, and is not at all safe for indiscriminate use by practitioners.

*Acetarson*e is giving good results in the treatment of amebic dysentery, but is of small value in syphilis.

Bismuth is being used more and more in the treatment of syphilis, especially in Wassermann-fast cases and in those who cannot tolerate the arsphenamines. A product containing both bismuth and arsenic in one molecule is now being developed and preliminary experimental work shows interesting results. More will be heard of this during the coming year.

General Medicine

Among the recent announcements which seem to offer the greatest possibilities in the way of revolutionary developments, the *bacteriophage* (see CLIN. MED., Sept., 1926, p. 622) and Crile's bipolar theory of life (see CLIN. MED., April, 1926, p. 240, and Jan., 1927, p. 82) seem to be the most promising.

Parenteral Medication is steadily gaining ground as new drugs which are suitable for intravenous or intramuscular administration are elaborated or perfected.

Gall-bladder Visualization, by the oral or intravenous administration of tetraiodophenolphthalein (Graham test), is opening new fields, not only in diagnosis but also in therapy, for it is now possible to study the condition and function of the gall-bladder without operation.

Biologic Therapy is steadily marching onward. *Diphtheria* is regularly prevented in 90 percent of susceptible individuals by toxin-antitoxin vaccination, carefully administered. *Scarlatinal serum* is now a reasonably standard treatment for that disease (see Dr. Dochez' paper in this issue), though prophylactic vaccination is still in the experimental stage.

Nonspecific Proteins are finding a wider and wider field of use in acute and chronic inflammatory conditions. Sterile, fat-free milk, normal and immune serums, blood transfusion, peptone and killed bacteria are being used for this purpose, with milk probably at the head.

Bacterial Vaccines have proved their value in the prophylaxis of typhoid and paratyphoid fevers and, for many persons, of common colds and whooping cough. Their value against pneumonia, influenza, plague, cholera, etc., is not so thoroughly demonstrated.

Immune Serums are now used successfully in diphtheria, scarlatina, type I pneumonia (here *Huntton's pneumococcus antibody solution* seems to work as well as the serum, without danger of anaphylaxis), streptococcus septicemia, erysipelas, bacillary dysentery, snake-bite and several other diseases. *Convalescent serums* or whole blood are giving good results in the prophylaxis of measles, mumps, anterior poliomyelitis (by intraspinal injection) and whooping cough.

Surgery

The recent progress in surgery seems to be largely along the line of increasing accuracy of *diagnosis*, brought about by the perfection of the technic of roentgenologic examinations, studies of metabolism and the like, and in the researches which are providing us with more satisfactory instruments and antiseptics.

Local anesthetics are now being used in major surgery more widely than ever before, not only by infiltration but by nerve block-

ing and by means of spinal and sacral or epidural injection.

The studies of Crile and others are bringing some extremely interesting suggestions regarding the augmentation of our surgical resources by combining them with the use of the various physical agencies, such as x-rays, ultraviolet rays and diathermy.

Obstetrics has especially benefited by the studies into the nature and prophylaxis of the puerperal toxemias (see *CLIN. MED.*, November, 1926, p. 798), by the introduction of new instruments, such as the Kiel-land forceps and the head stethoscope, by the x-ray study of the fetus in utero and by the fact that greater numbers of women are being confined in hospitals.

Physical Therapy

The outstanding developments in this field are the organization of the Council on Physical Therapy of the A.M.A. and the increasing power and influence of the American College of Physical Therapy. These two institutions will soon put this line of work on a par with the older therapeutic measures.

Diathermy and *Ultraviolet Irradiations* are now universally recognized and accepted and are entering upon the quantitative period of their development. The enormous biologic possibilities inherent in these two agencies are being investigated by accurate and skilled workers and new developments may be expected at any time.

The wide field of usefulness of the various physical methods of treatment is bringing them into all the specialties, as adjuncts to older methods, and is offering the general practitioner a number of potent weapons in his daily fight with disease.

New and improved apparatus, both for developing and for applying these agencies, is constantly being devised. *Diathermy* machines are now more powerful and easier to manipulate than they were a few years ago. The quartz-mercury lamp has been brought to a high state of perfection and we are beginning to work at the perfection and utilization of the carbon arc light in this country. Machines for galvanism, sine-wave currents, static and infrared radiation are attracting more and more attention, and the use of radiant heat-light seems to be gaining ground.

The applicators for bringing ultraviolet, diathermy, high-frequency currents, galvanism and other agencies to the patient are increasing rapidly, so that now there is scarcely a part or organ which cannot be conveniently reached and treated.

In this line we must beware of being carried away by our enthusiasm into unscientific thinking and the practices of the charlatan. No apparatus can practice medicine for us; and physical as well as other forms of therapy is still based upon sound and accurate diagnosis.

We are living in an age when the art and science of medicine are developing at an unprecedented rate. It will require the greatest industry and the keenest judgment on the part of all of us to keep abreast of the new and important matters which are emerging every day.

Many serious problems still await solution—notably those of cancer and heart disease, as well as the question of the metabolic diseases of the middle-aged—and there has never been a time when accurate and detailed study and records, by all physicians, were so badly needed.

In *Preventive Medicine* lies the field and the hope for the future. By regular, periodic examinations we must detect pathologic conditions in their incipency, in order that we may successfully bring to bear upon them the enormous and increasing therapeutic resources which are now available for our use.

It is not the type of work you do that makes you either honorable or dishonorable; it is the spirit in which you do it and the quality of the work that you turn out.—Annie Besant.

THE 1926 INDEX

There never has been a year when *CLINICAL MEDICINE* contained so much valuable material as it did in the year just past, and a wise man cannot afford to throw practical medical literature into the wastebasket. Medical books are very expensive and, at best, they are unlikely to contain so high a percentage of usable suggestions as are to be found in a live medical journal.

In order to make your volumes of *CLINICAL MEDICINE* more useful for ready reference we are preparing, at heavy expense, a very complete index of the volume for 1926 (Vol. 33) and will be delighted to send a copy, as soon as it is completed, to everyone who asks for it. A postal card will do. Just say, "I want the Index," and address it to us at North Chicago.

If you have no bookbinder in your neighborhood, we will look after that for you. We can have your copies bound in fine buckram for \$2.25 a volume. Take out the advertising pages; send us the complete file, express paid, with a check for \$2.25; we will put in an index and have it bound,

returning it to you express collect. You can then add a valuable volume to your library at small expense.

If you have not, heretofore, saved your copies, better begin with this one, as big things are coming in this new Volume 34 of CLINICAL MEDICINE AND SURGERY.

A man may not find what he is looking for, but he never finds anything unless he is looking for something.—Old Saying.

A SIGN OF THE TIMES

Significant changes have been taking place, during the last few years, in the relations existing between men of different races, creeds and social levels, and one of the most suggestive events, pointing to a new era in human associations, was recorded in the *Chicago Tribune* for December 3, 1926.

The seventy leading Jews of Chicago gave a dinner party, and each brought with him, as a special guest of honor, his closest friend among the Christians. A Wittkowsky brought an O'Connell; a Gottlieb brought a Fleming; a Steifel brought a Stewart; and a Loeb brought a Dolan.

At the speakers' table, addressing this memorable gathering as "My dear friends" and "My brethren", sat, side by side with two prominent Jewish rabbis, a priest of the Roman Catholic Church and the pastor of one of the great Presbyterian churches.

Not many years have passed since an assemblage such as this would have been impossible—unthinkable. It could scarcely have gotten under way before some of those who thought differently about some of the things which, in the last analysis, matter comparatively little, would have been flying at each other's throats.

We may have moments of feeling that the human race is in a sad way and is, in fact, headed for the "demnition bow-wows", but if we read the signs of the times thoughtfully and without bias, we realize that civilization really *does* go marching on, in spite of flurries and incidents which seem to indicate that we are retrograding.

Only four or five hundred years ago, murder (known by the name of the "exercise of chivalry") was not only a respectable but a highly dignified and honorable profession. Murder is still done among us, but the murderers do not, as a rule, move in our best society. A judge, in Georgia, recently sentenced a man to life imprisonment

for instigating a lynching party. Truly the world is moving forward.

The time may still be rather distant when every man will recognize every other man as his brother, and will know that an injury to any member of the body politic is an injury to the whole of that body, just as an injury to one of a man's members cripples the man as a whole, but he who will study current events with an understanding mind cannot fail to see that we have come a long way upon that road in the last generation or two.

The foolish will still continue to bicker and backbite and slander their neighbors; but the wise will heed the precursors of a new day and fall in with the groups which are marching to welcome it.

One interested in our welfare is a relative, though a stranger; one injurious is a stranger, though a relative; disease is hurtful, though born in our body; medicine is beneficial though produced in a forest.—Sanskrit Proverb.

PAST, PRESENT AND FUTURE

It is a truism that a man's past has a very considerable effect in determining his present situation. Even his ancestry is a powerful factor. If you had not been born of educated parents who had ideals for you, you might now be digging sewers instead of practicing medicine. If you had had those brakes tightened up yesterday you would not be facing a damage suit today. If you had not performed that critical operation just when you did your patient would be dead.

Of what stuff, then, is this "past" made, which has such weight in today's happiness or misery?

It is made of the very stuff which you are now calling "the present"—of days just like today, which, tomorrow, will be the "past" and will be shaping the circumstances in which you will then find yourself.

That is all simple enough, but did you ever stop to think that your *future* also exercises a potent influence upon your present? It is so.

Suppose you are in Chicago today, and tomorrow you are to start on a journey. That journey is in the "future", but it will make a big difference in your thoughts and activities, today, whether you are going to Paris, Illinois, or to Paris, France.

Suppose you are planning for your future that you will be a great and wise physician—a comfort and strength to your patients and an asset to your community: Or sup-

pose you are planning to amass a million dollars, without caring much how it is done. Is it not obvious that these events, which are still in the future, will have a profound effect in determining your conduct today?

The past, the present, and the future are all made of one stuff, and that is the stuff of eternity. We are living in eternity *now* as much as we ever will be, and when we look backward or forward into it we see nothing but a succession of "todays"—some dead and some yet unborn, but all of the same sort.

As the New Year begins, let us outline

our future, very carefully and clearly, in such a manner that it will force our "todays" to follow along the orderly path of progress; and then, as we come up with one of these "future" days every morning, let us so use it that at night, when it has joined the former days of our life in the "past", we may have no misgivings as to the effects it is going to have upon the "todays" that are yet to be encountered.

If we will all do some solid thinking along this line, and follow it with some effective *acting*, we will all have

A VERY HAPPY AND PROSPEROUS NEW YEAR.



Leading Articles

The Treatment of Scarlet Fever With Antitoxin*

By A. R. DOCHEZ, M.D., New York, N. Y.

SCARLET FEVER, as is well known, has undergone a remarkable diminution in severity during the past forty years. From being a very formidable and terrifying disease, with a case fatality rate in some epidemics of over 20 percent, it has gradually changed into one of considerably milder aspects, the case fatality rate in most communities not usually exceeding 3 percent. Accompanying this change in the death rate there has probably also been an amelioration in the severity of the septic complications.

The incidence of the disease, on the other hand, and the frequency of complications have not undergone a corresponding decrease. Such changes in characteristics have been observed before in the history of scarlet fever. The disease, however, is still a sufficiently serious affection, because of its effect on the community at large, the not infrequent fatal case, and the disabling character of the all-too-frequent complications, to justify the effort to control its course by the use of the recently developed scarlatinal antitoxin. As experience is increased in the employment of this antitoxin, its therapeutic value seems to be more and more convincingly demonstrated.

Nature and Clinical Course of Scarlatina

In order to understand the most appropriate use of scarlatinal antitoxin, it is necessary to have clearly in mind the nature and clinical course of scarlet fever. The disease is now believed to have a certain analogy to diphtheria in that, in its simplest form, there is a local infection of the superficial tissues of the throat with streptococcus scarlatinæ. At this point the organism elaborates its toxin which is absorbed into the blood and gives rise to the specific toxemia.

The clinical manifestations of the toxic phase are nausea, vomiting, high fever, rapid pulse, prostration, delirium, and a rash of varying intensity. The duration of this period is from four to seven days, or longer, during which time the toxin circulates in the blood in easily demonstrable quantities. At the end of this time the body begins to form antitoxin in increasing amounts; the circulating toxin is neutralized; and then comes the predominance of antitoxin in the blood, proof of which lies in the capacity of the serum at this stage to produce a positive blanching reaction in active scarlet fever.

Superimposed on the specific toxemia of simple scarlet fever, in an increasing proportion of cases as the disease progresses, are the septic aspects of the disease, due most frequently to local or general invasion of the body by *Streptococcus scarlatinæ*.

The septic phase manifests itself clinically as purulent rhino-pharyngitis, sinusitis, otitis media, mastoiditis, cervical adenitis, cellulitis, thrombophlebitis and septicemia. By the end of the first week these septic processes have, in many instances, become the most important factor in the continuance of the disease. Even when such a course of events takes place and the septic complications become more severe, adequate antitoxin formation may occur, as is proven by the disappearance of circulating toxin from the blood and the fading of the rash. The specific toxemia of scarlet fever may, therefore, be eliminated at a time when the septic process is continuing to develop and to become more serious.

Scarlatinal Antitoxin

Scarlatinal antitoxin at the present time is manufactured by a variety of methods, some of which employ filtered toxin elaborated by *Streptococcus scarlatinæ* grown in vitro; others the injection of the living organisms in a particular way; and still others,

*From the Department of Medicine, College of Physicians and Surgeons, Columbia University and the Presbyterian Hospital, New York.

combinations of these two procedures. The use of living organisms is supposed to endow the serum with antibacterial qualities which are thought to be of some value in preventing the development or checking the advance of septic processes. These sera, by whichever method made, contain more of less antitoxin, which is in all probability their most important therapeutic component. Clinically, also, the observation has been made that the greatest efficacy of the serum is manifested during the toxic phase of the disease.

Observations up to the present time lead to the conclusion that the therapeutic action of scarlatinal antitoxin is chiefly dependent upon its capacity to neutralize scarlatinal toxin. There are a number of reasons for this belief. If scarlatinal antitoxin is injected intracutaneously in a patient during the height of the exanthem, a local blanching of the rash occurs at the site of the inoculation (Schultz-Charlton extinction phenomenon), the explanation of which lies in the capacity of the antitoxin to neutralize the toxin locally in the skin. Antitoxin also neutralizes *in vitro* the toxin shown by Blake and Trask to be present in the blood during the period of the rash.

When antitoxin is given to patients in adequate dosage the circulating toxin is completely neutralized, and furthermore an excess of antitoxin is established in the blood so that the patient's serum acquires the power to give a positive Schultz-Charlton extinction phenomenon. Furthermore, antitoxin treatment of uncomplicated cases of scarlet fever results in a critical cure of the disease with the resulting prompt disappearance of the rash, subsidence of the toxic manifestations, and lowering of the fever and pulse rate. If septic complications have appeared these are benefited only indirectly by the cure of the toxemia. They may leave more rapidly or may persist for variable periods of time and continue to cause fever. In post-scarlatinal sepsis, after the rash has entirely disappeared, antitoxin seems to exert no beneficial action on the course of the disease. It would seem, therefore, that the main action of the serum is antitoxic, though the presence of antibacterial properties is possibly helpful and further experience may prove them to contribute a valuable addition to the therapeutic powers of the serum.

Administration of Antitoxin

There is a growing belief that antitoxin should be employed in all cases of scarlet

fever. This would seem to be the safest procedure, in spite of the fact that many instances of the disease are extremely mild and unattended by complications. The principal objection to treatment of mild cases is the unpleasantness of the serum disease that so frequently follows the injection of antitoxin. This objection, however, should not receive much consideration in view of the fact that apparently mild cases suddenly become unexpectedly severe and that serious complications frequently follow mild attacks.

Antitoxin should always be administered intramuscularly or intravenously, since after subcutaneous injection absorption is too slow. In a great majority of cases the intramuscular route seems quite satisfactory. The anterior or lateral aspect of the mid-thigh is generally the most suitable site for the injection. In very severe cases intravenous injection should be resorted to, since neutralization of the toxin is more rapidly effected by this route than by any other. In the uncomplicated toxic type of the disease a drop in temperature and fading of the rash within twenty-four hours indicate an adequate dosage. Failure of this to occur calls for a repetition of the dose. In the combined toxic and septic phase of the disease the blanching of the rash is the most reliable guide to dosage since fever may continue because of the septic process for some time after there is an excess of antitoxin in the blood.

Dosage of Antitoxin

The dosage of antitoxin in scarlet fever should be sufficient to establish a considerable excess of antitoxin in the blood of the patient at as early a period as it is possible to do so. The amount of antitoxin required to accomplish this purpose varies with the severity of the disease, the character and extent of the inflammatory process and the size of the patient. Probably somewhat smaller doses are required with intravenous than with intramuscular administration. Blake and Trask, in order to determine the proper dose as accurately as possible, have determined the amounts of toxin and antitoxin in the blood before and at intervals after treatment in a series of cases of scarlet fever of varying ages and degrees of severity, treated intramuscularly with varying amounts of antitoxin, and have connected these observations with the therapeutic result. On the basis of these results they recommend the dosage shown in the following table:

		Equivalent Volume Dosages of Antitoxins of different potencies		
Clinical Severity	Age	Units of Antitoxin*	Potency: skin test doses of toxin neutralized per cc.	Dosage in cc.
Mild and Moderate.....	Children.....	3,000 to 4,000 units....	10,000	30 to 40 cc.
			20,000	15 to 20 cc.
			40,000	7.5 to 10 cc.
Mild and Moderate.....	Adults.....	4,000 units.....	10,000	40 cc.
			20,000	20 cc.
			40,000	10 cc.
Severe.....	Children.....	4,000 to 6,000 units....	10,000	40 to 60 cc.
			20,000	20 to 30 cc.
			40,000	10 to 15 cc.
Severe.....	Adults.....	6,000 to 8,000 units....	10,000	60 to 80 cc.
			20,000	30 to 40 cc.
			40,000	15 to 20 cc.
Extremely Severe.....	Children.....	6,000 to 8,000 units....	10,000	60 to 80 cc.
			20,000	30 to 40 cc.
			40,000	15 to 20 cc.
Extremely Severe.....	Adults.....	8,000 to 12,000 units....	10,000	80 to 120 cc.
			20,000	40 to 60 cc.
			40,000	20 to 30 cc.

*1 unit = the amount of antitoxin required to neutralize 100 skin test doses of toxin.

Results of Treatment

Sufficient experience has now been had with the treatment of scarlet fever with antitoxin to justify certain conclusions. A final judgment concerning its power to reduce case fatality rate and to diminish the incidence of complications must await a more prolonged experience.

The indications at present are that early administration of antitoxin is effective in both of these respects. The clinical effect on the early uncomplicated case of scarlet fever is very conspicuous. Within twelve to thirty-six hours following the administration of antitoxin there is a subsidence of the toxic manifestations, the rash usually disappears completely, the pulse and temperature drop to normal, and there is a marked decrease in the leucocytosis. Desquamation is diminished or absent, depending upon the stage at which treatment is given. In the cases treated very early there is little or no desquamation, while in those treated late the usual desquamation occurs.

The effect of antitoxin on the duration of the period of quarantine has not yet been determined. In this country there has been no relaxation of the quarantine regulation by boards of health as a result of antitoxin treatment. There are some reports from abroad, however, which indicate that the time of hospital detention may be curtailed, though prolonged experience will be necessary to determine this point.

The effect of antitoxin on cases of scarlet fever with septic complications varies with the severity and duration of the septic proc-

ess. In the early instances when the specific toxemia still persists, there is a rapid disappearance of the toxic signs and the septic process may subside quickly or be ameliorated. Accompanying this effect there is a drop in the temperature and pulse rate with the usual fading of the rash. More or less fever may continue, however, depending on the course of the complication. In post-scarlatinal sepsis, even when due to *Streptococcus scarlatinae*, administration of antitoxin seems to be without beneficial action. Experience up to the present time, though it is, of course, somewhat limited, indicates that the administration of antitoxin early in the toxic stage of scarlet fever prevents the development of complications or lessens their severity.

Serum Reactions

Serum reactions to scarlet fever antitoxin are of two varieties. The early reaction coming within two hours of the administration of antitoxin is characterized by a chill, fever and increased pulse rate. It is not harmful, varies in intensity in different cases and is, as a rule, more severe when antitoxin is given intravenously. The late reaction, or serum disease as it is commonly called, develops from four days to two weeks after treatment and resembles that usually encountered after the injection of foreign serum. The unpleasantness of the symptoms varies greatly, in some being characterized by a mildly annoying skin rash, in others by severe urticarial eruption, fever, pain about the joints and edema of the face. Individuals hypersensitive to horse serum

are in danger of an acute anaphylactic shock and very careful inquiry should always be made concerning previous serum injections and the existence of the various allergic conditions such as hay fever, asthma, urticaria or other allergic skin eruptions. When a suspicion of such exists a careful test of the skin for sensitiveness to horse serum should always be made, and if a positive reaction occurs careful desensitization should be undertaken when it seems imperative to administer antitoxin. The injection of antitoxin should be at once discontinued upon the appearance of anaphylactic symptoms and epinephrin should be administered.

Prophylaxis

The advisability of the general use of antitoxin for the prophylaxis of scarlet fever, as is the practice in diphtheria, is still under discussion. Its administration to an exposed individual appears to give an adequate immunity lasting from three weeks to a month. In certain instances at the end of this period scarlet fever has developed due to the persistence of *Streptococcus scarlatinae* in the throat. If it seems advisable for special reasons to pro-

tect an individual against scarlet fever a prophylactic dose of antitoxin should be given. The relatively low percentage of infection after exposure by contact, and the frequency with which serum disease occurs has led some observers not to recommend prophylaxis by antitoxin as a universal procedure.

It is the custom of some to make a careful daily inspection of all exposed individuals. At the first appearance of fever or sore throat a full therapeutic dose of antitoxin is given. This effectively checks the disease and reduces the unpleasant incidence of serum disease.

When sporadic cases of scarlet fever appear at frequent intervals in families or small communities, it is advisable to resort to other means of protection, using antitoxin, perhaps, only as an immediate defense for a short period of time.

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Progress in Oto-Rhino-Laryngology

Notes on Some Recent Contributions to Pathology and Therapy

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APERUSAL of recent oto-rhino-laryngological literature, while not showing any very outstanding contributions to pathology and therapy, yet displays a rather definite tendency to view these subjects in a light different from the older conceptions. Brief mention only can be made of some of the most important articles appearing in the literature; these are arranged under regional headings which seems the most convenient method of referring to them.

Nose

There is a marked tendency in literature to connect certain nasal troubles with disturbances of endocrine gland secretions.

Hyperaesthetic Rhinitis.—The view has been current for some time that this condition, in particular, is associated with, if not due to, endocrine secretion disturbances.

Senseny¹ considers that hyperaesthetic rhinitis, rhinorrhea and sneezing are due

to two factors: (a) an irritability of the nasal ganglion; (b) associated endocrine disturbance. He says that it is a well-known clinical fact that focal infections of the nose and throat are associated with and are causative of glandular syndromes and vice versa.

Van Leeuwen² considers that nearly all asthma and cases of vasomotor rhinitis are due to hyper-sensitiveness of the patient toward certain substances called allergens.

Beck and Pollock³ treated twenty-five cases of true hyperaesthetic rhinitis by actinic-ray treatment, as recommended by Novak and Hollender. In all these patients the clinical symptoms disappeared completely, and in only one did a recurrence appear, which also disappeared on reapplication of actinic rays.

The reviewer holds the opinion that hyperaesthetic rhinitis is only a local mucosal

expression of faulty endocrine function, especially of the thyroid. This view is supported by the fact that in almost every case there is a lowered basal metabolism and more or less other evidence of endocrine dysfunction.

Ozena.—Treatment of this distressing condition still attracts much attention. Pulverized adrenalin, vaccines, specific or not, and operations of various kinds are recommended by different authors. Seco⁴ treated 100 cases by multiple (microbic organic) vaccine and obtained very favorable results in 84. Portmann⁵ treated 12 cases by vaccine with complete disappearance of symptoms in 2 and considerable improvement in 8.

In regard to Bier's iodine method of aborting "colds", McKenzie⁶ gives the formula which he personally found immediately beneficial in a case of nasal catarrh. This consists of 1 percent iodine, dissolved in water to which a little potassium iodide is added. Of this one minim, well diluted with water, is taken once in 24 hours.

Spielberg⁷ describes a new method of surgical approach in the removal of nasal obstructions by submucous resection of the inferior turbinal bone. Spielberg's incision begins high above the anterior attachment of the inferior turbinal and along the pyriform aperture, through mucosa and periosteum to bone, carried down along the entire anterior border of the turbinate. The mucosa is elevated and the bony lamina removed, the muco-periosteum being preserved.

Throat

Malignant Disease.—The whole subject of cancer of the larynx and its treatment, especially operative, by laryngectomy, has been written up in a comprehensive and fully illustrated article by MacKenty⁸. Fifty-five total laryngectomies and four thyrotomies were executed by this author between 1917 and 1924 without any immediate mortality. There was one recurrence among the thyrotomized. From 1917 to 1922 thirty-one laryngectomies gave five recurrences, and between 1922 and 1925 fifty-eight laryngectomies gave five recurrences. The results achieved in arrest of cancer by surgery in this field far excel those obtained in any other part of the body.

In treating of laryngofissure for intrinsic cancer of the larynx, Tucker⁹ states that it shows a cure in from 79 to 85 percent of early anterior cases by different operators. The operation is much preferable, Tucker

thinks, to laryngectomy in the type of cases mentioned. If malignancy recurs a radical operation can always be done; but only about 20 percent should require this. Post-operative prophylactic irradiation is useful but should be used with great caution because of the danger of perichondritis. The revival of laryngofissure, for intrinsic laryngeal cancer, is especially due to St. Clair Thompson¹⁰ who has recently written on the subject citing an enduring cure in over 80 percent of a large series of cases.

Regarding cancer of the throat Sekoulitch¹¹ found cancer of the upper air passages especially frequent in wood-workers and thinks that wood and its derivatives, like tar and soot, may contain some "cancerogenetic" substance. Among 1,000 cases of disorders of the upper respiratory tract Sekoulitch found that 177 of the patients were wood-workers and 25 of these patients had cancer. Of 894 malignant tumors of the respiratory tract, 118 occurred in wood-workers.

Finochietto¹² shows the advantage of preliminary ligation of the supplying vessels before operating on the tongue for malignancy. In a cited case of tongue carcinoma, ligation and severing of the lingual arteries on both sides reduced the tumor to one-fifth of its former size in a few days. If the tonsils are involved the inferior pharyngeal arteries should also be ligated.

Samengo¹³ employed surgical diathermy, either alone or combined with roentgen or radium therapy, in 58 cases of cancer of the superior respiratory or digestive tracts (larynx and esophagus excepted). In 19 there was a clinical recovery, maintained for 1 to 5 years, these being chiefly baso-cellular cancers, diagnosed early, which responded more rapidly to the treatment than epidermoid or spino-cellular tumors. The radiation was employed to destroy such neoplastic cells as escaped diathermic action. Of the other 39 cases, 28 were inoperable and the diathermy was used as a palliative measure only. Electrocoagulation suppresses pain, hemorrhage and putrid discharges, besides prolonging life, in advanced cases.

Wyeth¹⁴ recommends hemiglossectomy by endothermy in cancer of the tongue.

Regaud¹⁵ cites satisfactory results from radiotherapy of laryngeal cancer.

Moulonguet¹⁶ recommends section of the recurrent nerve in laryngeal tuberculosis.

Friedman¹⁷ describes a certain form of pharyngeal and tonsillar ulcers which are associated with pathologic conditions in the blood. There may be severe necrotic and

gangrenous processes in the tonsils, simulating diphtheria, which do not yield to large doses of antitoxin. Examination of the blood will show changes in the composition, especially deficiency in leucocytes. The condition is named agranulocytotic angina. Hunter² writes on the same subject.

Regarding complications arising from diphtheria, Fornara³ describes 8 cases of post-diphtheric paralysis, the polyneuritic symptoms resembling those of epidemic encephalitis.

Hoskins⁴ reports 16 cases of diphtheria with no observation of heart defects during the hospital period but which later on showed tachycardia. He points to the necessity for careful examination of any heart abnormality during the hospital stay.

Tonsillitis and Pharyngitis.—Portmann⁵, while confirmed in his belief in regard to the efficiency of complete removal of diseased tonsils, yet thinks that in children, as hypertrophy in the majority of cases is the only cause of trouble, partial removal is justifiable.

Middleton⁶ recommends radiation rather than surgery for diseased tonsils. Radiation avoids disagreeable or serious after-effects; it reaches the affected peritonsillar region, and removes the infected lymphoid tissue only, leaving the sound tissue unaffected. Gonzales⁷ also reports excellent results with radiotherapy (associated with diathermy) in chronic tonsillitis and pharyngitis; for hypertrophied tonsils he uses radiotherapy alone.

Ballou⁸ and also Fraser⁹ call attention to the advantages of the bronchoscopic method of injecting lipiodol in the diagnosis of conditions in the bronchi and lungs after direct vision.

Ballenger¹⁰ found a transient bacteremia secondary to acute hemolytic streptococcal throat infection in several cases and thinks that it is probably of frequent occurrence.

In regard to surgical progress Hastings¹¹ recently reported a successful bilateral jugular resection for bilateral sigmoid sinus thrombosis (otitic), and states that surgeons need not view this procedure with the fear formerly associated with it.

Ear

Otitis.—Kettlekamp¹² differentiates otitis caused by capsulated and noncapsulated bacteria. The first give rise to a special type which does not show any characteristic symptoms until the mischief is done. This

type is known as mucosus otitis and is rare. Mild otitis should be viewed with suspicion as, if it is of the type referred to, it may end fatally.

In a critical study of scarlet fever otitis, Souper¹³ states that the ear infection proceeds from the throat via the Eustachian tube. The incidence of otitic complications in scarlet fever is about 7 percent. Souper favors removal of diseased tonsils and adenoids at the end of three weeks after the incidence of scarlet fever. If a specific serum for the fever is found the otitic complications should be greatly reduced.

Porter¹⁴ treated 3 cases of septicemia of otitic origin satisfactorily with mercurochrome.

Among foreign authors Le Mee, Bloch and Cuzejust¹⁵ favor paracentesis as a treatment of latent otitis in infants but oppose aspiratory puncture for diagnostic purposes. They, as well as other authors, also oppose systematic trepanation of the mastoid in non-complicated otitis in the infant, regarding it as a grave procedure.

Nora Lister¹⁶ obtained 25.5 percent of recoveries in 43 middle ear suppurations with ionic medication and states that Friel obtained 49.6 percent of cures by the same method.

Milligan¹⁷ discusses the hemorrhagic type of ear disease occurring during influenzal epidemics; he considers it of the utmost importance to recognize the symptoms of an early sero-sanguinous labyrinthitis and to treat it vigorously by local depletion, lumbar puncture, etc.

Steps should be taken to oppose the passage of toxins through the auditory tract. In treating infections of the sigmoid sinus Dixon¹⁸ departs from the radical opening of the sinus and, even when the clinical findings are an infected thrombus, he limits the surgery to uncovering the vessel thoroughly until the normal sinus is reached, inserting a short wick drain—not a pack—and leaving the wound wide open. If the septic symptoms continue beyond forty-eight hours after operation, the exposed sinus can be thoroughly opened and drained. Dixon thinks the delay of forty-eight hours does not add greatly to the hazards of the patient and is of inestimable value in differential diagnosis of sinus thrombosis from other conditions which simulate it.

Kolmer¹⁹ in dog experiments, found that serum injections, whether specific or polyvalent, failed to influence streptococcal septic meningitis. Injections of antibody solution

had some influential effect, and lavage of one or both of the lateral ventricles of the cisterna magna proved effective in the treatment of severe experimental streptococcal meningitis.

Hemeleers²⁶ obtained excellent clinical results from the use of autogenous vaccines in furunculosis of the auditory canal and in suppurative hematomas of the external ear.

Abrahams and Bonoff²⁷ have made an important contribution to the literature concerning the streptococcus mucosus as an etiological factor in otitis media and mastoiditis.

Regarding the perforations of the tympanic membrane, Gomperz²⁸ states that, despite its great tendency to regeneration after perforation, there are many failures due to overgrowth of the outer layer of epithelium over the edges of the unhealed perforation. In the first year of life unhealed perforations are rare except in tuberculosis and syphilis. Perforation may occur with influenza, whooping cough, measles, scarlet fever, etc., and it may enlarge, with constant suppuration. In discussing modes of treatment, Gomperz especially mentions the application of trichloroacetic acid to the edges of the perforation.

Otosclerosis.—Warwick and Stevenson²⁹ think that the key to the hereditary factor in otosclerosis is to be found in disorders of certain of the endocrine glands which cause changes in calcium metabolism. These authors, on the basis of this opinion, in treating otosclerosis have applied x-ray stimulation to the thyroid, ovary and pituitary regions and claim good results.

Deafness.—Shambaugh and his associates³⁰ have made a statistical study of the children in the Chicago Public Schools for the Deaf. Half of these children were found to be congenitally deaf. Total deafness existed in 57.9 percent. Vestibular responses were present in 75.1 percent of the cases of congenital deafness and in 62.07 percent of the cases of acquired deafness. A total absence of vestibular responses and total deafness were found in 17.5 percent of cases of congenital deafness and in 2.62 percent of cases of acquired deafness. Presence of vestibular responses and total deafness were found in 40 percent of the cases of congenital deafness and 8.2 percent of cases of acquired deafness. Absence of vestibular responses and partial deafness were found in 6.2 percent of cases of congenital deafness and in 11.03 percent of cases of acquired deafness. Presence of vestibular responses and par-

tial deafness were found in 34.5 percent in the cases of congenital and in 53.8 percent of cases of acquired deafness.

Miscellaneous Observations

Diathermy.—New³¹ thinks that diathermy has an important place in the treatment of many lesions about the nose, throat and mouth, and that it may prove to be the best means of treating papilloma of the larynx.

The advantages of diathermy over the other forms of the cautery are:

1.—It is not necessary to protect the tissues around the area treated.

2.—There is no bleeding during the operation.

3.—The active electrode is easily carried to the site of disease.

4.—Local anesthesia may be employed if necessary.

5.—Sterilization is affected by the heat being brought from the depth of the tissue.

The disadvantages are:

1.—The destruction of tissue is much greater than appears at the time of operation.

2.—The possibility of secondary hemorrhage.

Beck and Pollock³² found exceedingly gratifying results from the use of *conductive heat* (Leucodescent heat lamp) in the treatment of acute sinus infections, acute otitis media, gland infections, etc. They think that the various electric and other rays have a distinct value in the therapeutic armamentarium; but their action must be thoroughly understood and cases must be selected.

Gonzalez³³ associates diathermy with radiotherapy in the treatment of chronic tonsillitis and pharyngitis.

Hays³⁴ thinks it possible to produce local immunization of tissues of the nose, throat and ear by *autogenous bacterial vaccines*, based on his experience of vaccination in nearly 400 cases. The vaccine seems to act more beneficially in purulent conditions which can be reached directly, and nasal sinus infections seem to respond more readily than other conditions. Vaccines stimulate slowly healing wounds, particularly bone infections.

Beck, Pollock and Lederer,³⁵ in an experience of over 2,000 cases about the head and neck, anesthetized by Gwathmay's synergistic method, found that there was only 14 percent in which the anesthesia showed some insufficiency. There was one fatality.

Voorhees³⁶ reviews the use of *bacteriostatic dyes* in eye, ear, nose and throat

practice. He thinks the dyes hold bacterial development in check. In several personal cases in which he used acrifiolet (a combination of acriflavine and gentian violet) or mercurochrome the results appear satisfactory and promising.

Maltz⁴⁵ describes new procedures for lachrymal sac, frontal sinus and endonasal surgical plastic operations. The procedures are based on two main incisions: (1) a quadrilateral incision in front of the head of the middle turbinate, enclosing the region over the torus lacrimalis. The mucosa and periosteum within this area are elevated and removed; (2) an oblique incision directly below the inferior border of the triangular cartilage, a second curved incision being made from the inferior margin of the nasal bone and carried down to the lower part of the apertura piriformis to the floor of the nose. Periosteum is elevated and a piece of bone removed in the region where the mucous membrane was excised. This gives easy access to the lachrymal sac, etc., and the surgeon has the advantage of working under direct vision. The method is also applicable to nasal deformity plastic procedures.

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Progress in Cardiology

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IN reviewing the progress in cardiology during the past year, an attempt has been made by the author to cover as much of the important literature as possible, giving a summary of the recent developments in this department published by various authors.

Anatomy and Physiology

In studying the blood supply of the septum in the ox, Drennan (*M. J. S. Africa*, Aug., 1926) found that, in addition to the small branches going to the interventricular septum from the anterior and posterior

branches of the left and right coronaries, there is a much more important septal artery arising from the very commencement of the right coronary. This branch runs down the center of the septum accompanying the right branch of the bundle. It also sends a small branch through the septum to supply the left bundle. This finding has been verified in several dissections of human hearts.

By the injection of iodized oil, Rouslacroix (*Compt. rend. de Soc. de Biol.* Dec. 11, 1925, 93:1446) has obtained clear roentgeno-

grams of the coronaries and all their branches. He believes this method might be utilized in the study of heart conditions in which a disease of the coronaries is suspected.

In the denervated heart, the arterial blood pressure is the only mechanical factor which determines coronary circulation. Neither a change in the heart rate nor in the strength of the cardiac contractions, as produced by changes in the stroke output, have any influence on the coronary flow per minute. In the innervated heart, the coronary blood flow is determined by the minute output of the heart. An increase in the output is accompanied by an augmented coronary flow. These experiments demonstrate the presence of vasoconstrictor fibres to the coronary blood vessels in the vagi and of the vasodilator fibres in the sympathetic.

Crawford and Rosenberger, (*J. Clin. Investigation*, 1926, 2:343) describe an apparatus by means of which it has been possible to take cinematographic records of the capillaries at the nail fold in the human subject. These observations show the diameter of the capillaries to be constantly changing. The extent of the changes during the stage of decompensation was much greater. When compensation became established under digitalis, the variations became less marked.

The recent advances made in the physiology of the thyroid explain, to some extent, the clinical improvement in patients having the Stokes-Adams syndrome. An increase in 1 mg. of thyroxin causes a corresponding alteration of 2.8 percent in the basal metabolic rate. Plummer, Willius and Boothby have shown that definite physiologic cardiovascular reactions (acceleration of heart rate, increase in the volume output for each beat, etc.) accompany the elevation of the basal metabolic rate in thyroid disorders.

Yandell Henderson (*Lancet*, Dec. 26, 1925, p. 1317) concludes his article on "Efficiency of the Heart" with the following statement, "The volume of the blood stream through the lungs is determined from the rate of absorption of ethyl iodide vapor. This method affords an efficient and practicable means of measuring the circulation, not only in normal persons, both those of athletic and sedentary habits, but also in patients with moderate cardiac impairment."

Professor Ludwig Haberlandt (*Lancet*, Nov. 6, 1926, 2:973) has recently given the Vienna Medical Society an interesting account of some experiments on the heart which he claims have established the exist-

ence of a cardiac hormone. Professor Haberlandt placed hearts, freshly taken from frogs, in warm saline solution, where they continued to beat for some time. He then removed part of the sinus and placed it also in salt solution, where it beat in the same way. Here he discovered the remarkable fact that the beating fragment imparted its property to the solution. Hearts which had been removed up to three days previously, and were apparently quite dead, were found to recover on being put in the solution in which the sinus had been beating. They began to beat again. In other words, the fragment of the heart had given off into the saline solution a substance which irritated and resuscitated an apparently paralysed heart muscle. Numerous control experiments have established the fact that in the cardiac sinus, as well as in the floor of the ventricle, a hormone is formed that is the cause of the cardiac contractions. It produces these contractions in non-beating hearts; it increases the rate of those which are slowly beating; it strengthens the force of the cardiac movement. Prof. Haberlandt hopes that he will shortly find a practical method of obtaining the hormone from the hearts of slaughtered animals, in quantities sufficient for its therapeutic use in medicine.

Electrocardiograph

Hepburn and Jamieson (*Am. Heart J.* 1:623, June, 1926) review the prognostic significance of several common electrocardiographic abnormalities. In their series of 97 cases, the grand average mortality, with T wave negativity, was 49 percent in 8.27 months.

Bundle branch block proves to be a most serious electrocardiographic abnormality. Willius (*Am. Heart J.* June, 1926, 1:576) found that in 65 percent of those showing bundle branch block and dying from cardiac disease, the average length of life was only 14 months after the date of examination. Cowan and Bramwell (*Quart. J. Med.* Oct., 1925, 19:95) conclude that, while bundle branch block indicates a definite myocardial lesion, yet if unaccompanied by signs of cardiac insufficiency, is not necessarily of grave prognostic significance. The high death rate reported in cases of bundle branch block is probably due to the fact that most of these cases, when reporting for examination, show other signs suggestive of advanced myocardial disease.

In hypertensive heart disease, the electrocardiogram is of great benefit in prognosis.

Peak voltage or low voltage of the QRS renders the prognosis grave. Inversion of the T wave is unfavorable, especially if inverted in all three leads. If, in addition, there is an upward convexity of the ST interval in all three leads, the prognosis is generally less than a year. Bundle branch block occurring in hypertensive heart disease renders the prognosis very grave.

Sprague and White (*J. Clin. Investigation*, Oct., 1926, 3:109) conclude that low voltage is a finding of diagnostic and prognostic importance in forming an opinion of the myocardial ability of any individual. Two-thirds of the arteriosclerotic group died within two years after the finding of low voltage. This finding was present in ten cases of hypothyroidism, disappearing after treatment.

Thacher and White (*Am. J. M. Sc.*, Jan., 1926, 171:61), on their observations in myxedema, state that in lead two there was a low T wave before treatment, with increase in the positive amplitude after treatment. Thus there appears to be a distinct parallelism between the T wave and the basal metabolic rate in hypothyroidism.

Arrhythmias

Premature Beats.—Three varieties of extrasystoles occur in childhood; the emotional, the toxic, and the idiopathic. The toxic variety occurs as a result of acute infections and is usually transitory. The idiopathic is seen in the healthy child, and while more or less permanent, does not predispose to or result in cardiac disease. (Bass: *J.A.M.A.*, Feb. 6, 1926, 86:387).

Many cases persist in having premature beats in spite of a diligent search for foci of infection and their removal. In our experience, the results of treatment are better, as a whole, in the group of so-called auricular extrasystoles. In many cases, if sufficient tracings are made, both the auricular and ventricular premature contractions can be noted. However, as a rule, the one or the other type is predominant. In these cases the patient should be given the benefit of full therapeutic doses of digitalis. Response to treatment is often immediately apparent, with temporary and, in some cases, complete disappearance of the extrasystoles. It has been our custom in the cases that do not respond to digitalis to give quinidine sulphate by mouth. After a small initial dose, 0.2 gram is given after each meal and gradually increased to 0.2 gram every four hours during the day. A few of

these cases respond favorably. There are others in which the extrasystoles are entirely resistant to all forms of treatment. In these respects our conclusions agree with those published by Otto and Gold. (*Arch. Int. Med.*, Aug. 15, 1926, 38:186).

Paroxysmal Tachycardia.—Very little has been added to the literature in the past year relative to either the etiology or the treatment of this condition. One of the characteristics of this disorder is that, as a rule, it is not accompanied by any organic disease of the heart. We have had the opportunity during the year of studying several cases, none of whom presented any objective signs of valvular disease or changes in the myocardium. Auricular paroxysmal tachycardia is of less prognostic significance than the ventricular form. The prognosis in any given case depends upon the type and degree of the underlying cardiac damage. Barnes (*Am. J.M. Sc.*, April, 1926, 171:489) stated that cerebral manifestations consisting of vertigo, hemianopsia, temporary blindness, fainting, falling, with or without loss of consciousness and epileptiform seizures, occurred in fifteen out of 104 cases of paroxysmal tachycardia. These cerebral manifestations do not affect the prognosis.

In the treatment, an attempt should be made to prevent the recurrence by searching diligently for any foci of infection, and by warning the patient to avoid, so far as possible, exciting causes, such as digestive disturbances, exertion, etc. During the attack, taking slow deep breaths, tickling the pharynx to the point of nausea and compression of the vagus nerves, are at times helpful. We have not found digitalis of any value. Quinine dihydrochloride, grains $7\frac{1}{2}$ intravenously, is often efficacious in stopping an attack. Quinidine between attacks may help in the prevention of a recurrence or in lengthening the periods of intermission.

Auricular Flutter.—In this arrhythmia, the importance of early diagnosis and proper treatment cannot be over-emphasized. In a person with cardiac failure and an extremely rapid ventricular rate, which is regular, this condition should be suspected. The electrocardiogram will offer a positive diagnosis. Digitalis, given intravenously or intramuscularly to secure quick action, should be pushed to its physiologic limit, or until results are obtained. Bishop, (*M. J. and Rec.*, June 16, 1926, 123:814) describes a typical case, showing the value

of early diagnosis and properly instituted treatment.

Auricular Fibrillation.—A complete review of this subject with extensive bibliography is given by Barker, (*Am. Heart J.*, Oct., 1926, 2:72). Quinidine is discussed, giving the results published by various authors. The past year has added very little to the subject. The patient should be completely digitalized before quinidine therapy is commenced. Results are variable, occasional cases reverting to permanent normal rhythm; the rule, however, is a recurrence of the fibrillation. Auricular fibrillation of short duration is more likely to respond favorably to the use of quinidine.

Diseases of the Coronary Circulation

Angina Pectoris.—Nothing new has been added in the past year to the already existing controversy as to the etiology of angina pectoris. It seems more than possible that several factors may be combined in the causation, such as sclerosis of the coronaries, disease of the aorta, or as MacKenzie believes, the myocardium itself. In the surgical treatment of this condition, many articles of note have been published. In reviewing these various surgical procedures, it is evident that it is still on an experimental basis. The numerous operations and their results can be explained by the variability of the nerve structures in the neck and the frequent communications between the vagus and the cervical cardiac nerves. Lambert's article on Cardiac Pain (*Am. Heart J.*, Oct., 1926, 2:18) gives a conclusive review of the various surgical procedures and their results.

In carefully selected cases, left cervical sympathectomy has given good results. The pain has been stopped, enabling the patients to continue their former work. The recent studies of Jonnesco (*Ztschr. f. d. ges. exper. Med.*, 1926, 48:516) would indicate that the function of the heart is little, if at all, impaired by the operation. Danielopolu (*Brit. M. J.*, 1926, 1:180) feels that the removal of or interference with the stellate ganglion accounts for some of the unfavorable results. Levine and Newton (*Am. Heart J.*, Oct., 1925, 1:41) have emphasized the necessity of a selection of cases for this operation. Operation is inadvisable in patients where the intense pain is caused by coronary disease. The operation on the depressor nerve is open to criticism because the nerve may run with the vagus or be present as a separate trunk.

Swetlow (*Am. Heart J.*, April, 1926, 1:393) reports the results of injection of 5 to 8 cc. of an 85 percent solution of alcohol in the treatment of cardiac pain. The alcohol is injected into, or as near as possible to, each dorsal root ganglion. In a group of eight cases suffering with severe precordial pain, treated in this manner, prompt and satisfactory relief was secured in every instance. The freedom from pain continued for several months. Further case reports are necessary on this procedure before a final conclusion is justified.

Coronary Thrombosis.—The clinical features of this common condition with complete reference to the literature are well presented by Louis Hamman, (*Bull. John Hopkins Hosp.*, 1926, 38:273). Coronary thrombosis occurs in about 20 percent of those suffering from coronary endarteritis, coming on suddenly and often without previous warning of any serious cardiac disease. Approximately one-third of the patients recover from the attack. Death, when it occurs, is due to ventricular fibrillation.

As a rule, the clinical symptoms of this condition are pathognomonic; yet, as Wolf and White (*Boston M. & Surg. J.*, July 1, 1926) have pointed out, pain, pulmonary and gastrointestinal symptoms do not always occur. Severe dyspnea may be the presenting or the only symptom. Congestive failure following shortly upon an attack of cardiac pain, is presumptive evidence of coronary occlusion. In their series of cases, peripheral embolism occurred in 10 percent, cardiac aneurysm in 13 percent, pericarditis in 48 percent and cardiac infarction in 74 percent.

The pain of coronary occlusion is similar to the pain of angina pectoris, but more severe and more prolonged. Morphine may be powerless to relieve the agony. Wilson (*Ann. Clin. Med.*, July, 1926, 5:46) recently reported such a case in which cervical sympathectomy was done to give the patient relief.

The pain may be entirely referred to the epigastrium, associated with tenderness, nausea, vomiting and rigidity, consequently, unless this condition is borne in mind, a mistake of upper abdominal pathology might easily be made. Libman has suggested that early and marked swelling of the liver points to occlusion in the right rather than in the left branch of the coronary. Although the pain may be absent, fever and leucocytosis are usually present. In the experience of Hamman, embolic phenomena are more common than pericardial friction

and their significance equally decisive for diagnosis.

Hypertension

To the already existing theories of arteriosclerosis, has been added a disturbance of the acid-base equilibrium resulting in the excretion of excessively acid urines. This disturbance of balance has been produced by high protein diets, both in man and experimental animals. By feeding excessive protein diets to animals for periods as long as two years, Nuzum *et al* (*Archives Int. Med.*, 1926, 37:733) have obtained increased blood pressures. The animals in which the most marked increase of blood pressures were obtained, presented extensive arteriosclerosis of the aorta, and, in many instances, of the coronaries. Evidence of kidney damage was also obtained, as demonstrated by chemical studies of the blood and urine. This view the author is able to corroborate in part. Routine tests for the acidity of the urine have shown in many cases high acid reactions over a period of years, yet with no hypertension or demonstrable arteriosclerosis.

Our treatment includes strictly basic diet to overcome this disturbance of the acid-base equilibrium. On the other hand, other observers have reported that hypertension is not caused in rabbits by renal insufficiency per se, nor by a high protein diet, even in the presence of a low renal function, nor by prolonged retention of creatinine and urea in the blood. High protein diet results, however, in a marked atherosclerosis of the aorta which does not extend to the small arteries. (Hilding: *Archives Int. Med.*, March, 1926).

Vaquez ("Disease of the Heart") believes that arterial hypertension is due to an overactivity of the chromaffin system, followed at a longer or shorter interval by renal and vascular lesions.

A causal relationship between obesity and hypertension should not be forgotten. Numerous physicians have noted a fall in blood pressure with a reduction of weight in the hypertensive obese. Life insurance figures show conclusively that the incidence of hypertension is between two and three times greater for all age groups between 25 and 55 in the obese, than it is in persons of average weight.

In acute lead poisoning the blood pressure is very high, with a sudden drop as the other symptoms subside. In chronic lead poisoning the pressure is low, as lead de-

presses the heart's action. After arteriosclerosis has developed there is an increased systolic with a lowered diastolic pressure.

Beckman (*Deutsches Arch. f. klin. Med.*, Dec., 1925, 149:177) produced a slight but undeniable hypertension in rabbits by repeated injections of epinephrin. The capillary pressure was also increased. No kidney changes were noted.

Renaud (*Bull. de la Soc. Med. des hop. de Paris*, Jan. 22, 1926) states that large doses of sodium citrate will increase both the systolic and diastolic blood pressures and that the blood pressure should be carefully examined in cases of prolonged administration of the drug.

Major's experiments (*Bull. Johns Hopkins Hosp.*, Feb., 1926, 38:112) have proved of great value. He found methyl guanidin was markedly pressor when injected intravenously or subcutaneously or even given by mouth in dogs, and later noted a similar effect in normal persons. It was also shown that, in patients with essential hypertension and chronic nephritis, there was a decreased excretion in methyl guanidin as compared with normal individuals. Calcium chloride and later parathyroid extract were found capable of neutralizing the pressor effect of methyl guanidin. However, the results of the administration of these drugs for the reduction of blood pressure have been disappointing. More recently experiments have shown that the liver contains some substance which has a depressor action on blood pressure. Other organs such as the spleen, kidneys, etc., have a similar action, but the effect not so marked nor so lasting. (James, Laughton, & McCallum, *Am. J. Physiol.*, Jan., 1926).

McDonald (*Boston M. & Surg. J.*, March 4, 1926) suggests that the depressor effect of the liver extract is due to an unknown substance or that this unknown substance may activate either histamine or choline, or both. He believes the extract to contain small quantities of histamine and large quantities of choline. The exact mode of action of liver extracts is still obscure, but it is believed the principal effect is on the small arterioles. Unfortunately, the instability of the depressor principle under the most favorable conditions is such that the extract has to be administered freshly prepared to insure the best results. Theoretically, the group of patients who should respond best are those whose hypertension is of brief duration and in whom anatomic alterations have not yet taken place. The

intramuscular injection is much more effective than the intravenous, but as yet we have no method of determining the dosage in units to any given case.

McLester states, regarding the use of liver extract, that there has been a material drop in both systolic and diastolic pressures immediately following the injection, the duration lasting from a few hours to several days. Viewed over a period of several weeks the administration of liver extract has not had a lasting effect on the blood pressure. This view is held by most clinicians experimenting with liver extract today.

Klotz (*Canad. M.A.J.*, 1926, 16:11) outlines the most recent conceptions of arteriosclerosis, emphasizing as etiologic factors three important conditions: (1) The influence of bacterial agents in causing damage in the nature of inflammation of the arterial wall; (2) The influence of the virus of rheumatic fever upon the arterial system; and (3), the influence of work in causing thickening of the peripheral vessels, particularly in the lower extremities, from continued high arterial pressure.

Fahr (*Minnesota Med.*, Jan., 1926, 9:6) states that chronic myocarditis is a rare disease. In his experience clinical evidence indicates that at least 75 percent of all chronic heart muscle disease is associated with high blood pressure and the high blood pressure is at least one very prominent factor in the left ventricular dilatation and heart failure.

Endocarditis

Rheumatic Heart Disease.—Mackie (*Am. J. Med. Sc.*, 1926, 72:199), in studying 366 cases of rheumatic fever, found 68.3 percent showed evidence of cardiac disease, either at the time of admission to the hospital or during their stay in the wards. In the follow-up clinic 42 out of 204 cases showed definite improvement in the cardiac condition; 57 showed evidence of a progressive lesion; and 103 cases were essentially unchanged. Of 66 cases of chorea, 34 had definite evidence of cardiac involvement. In the clinic 40 of these were followed up carefully; 11 showed improvement in the cardiac condition; 8 had progressive lesions; and 21 cases were unchanged. Studying the rôle of focal infection, he finds that tonsillectomy and removal of any other evidence of infection seems to reduce, but does not remove, the incidence of recurrences of rheumatic fever.

Sir Thomas Horder (*Lancet*, April 3, 1926, 1:695), in relating heart affections

incident to acute rheumatism, states: (1) that there is involvement of the heart in so great a proportion of the cases that it is wise to assume that it may be involved in all, and this even in the absence of any direct evidence by physical signs; (2) that the inflammation, especially in children, is of the nature of a carditis. He further states that the more purely regurgitant a mitral lesion was found to be, the more likely was it that the patient had had an acute attack of rheumatism and one attack only; or, if more than one attack, then with intervals of some years between attacks. The more purely stenotic the mitral lesion was found to be, the more likely was it that the patient had never had an attack of acute rheumatism, but had had some mild rheumatic manifestations of the chronic type (such as "growing pains", mild chorea, myalgias) or gave no history of rheumatism at all. In his analysis of 100 consecutive cases of mitral stenosis, 63 gave no history of acute rheumatism and 36 no history of rheumatism or any allied condition.

Wyckoff and Lingg (*Am. Heart J.*, April, 1926, 1:446) found, in about 75 percent of the cases of rheumatic heart disease, that rheumatic fever, either alone or in combination with other infections, was an etiologic factor; tonsillitis in 25 percent; chorea 10 to 15 percent; "growing" or joint pains in 5 percent.

Cabot ("Facts on the Heart"), in 1846 necropsied cases of heart disease, found only seven cases of mitral incompetence, three of them doubtful. In the same series there were 107 cases of mitral stenosis. Pathologically the lesion in mitral incompetence is an endocarditis nearly confined to the chordæ tendinæ and papillary muscles. Cabot supports the belief that mitral incompetence is rarely, if ever, a clinical entity. On the other hand, Sprague and White (*Am. Heart J.*, June, 1926, 1:629) state that pure organic mitral regurgitation is a clinical entity, but is not demonstrated at necropsy, as it is rarely, if ever, fatal.

As it is known that a mitral stenosis complicated with an open foramen ovale has a comparatively good prognosis, Jarotzky (*Zentralbl. f. Chir.*, Jan. 16, 1926, 53:140) suggests making an artificial communication between the auricles by means of the introduction of an instrument through the jugular vein.

Allen and Barker (*Am. Heart J.* 1:693) state that the approach to the mitral valve

through the left auricular appendix gave rise to no dangerous or even serious disturbances of rhythm. The approach through the left ventricle produced more disturbance of rhythm, frequently ventricular fibrillation.

Thorne (*Practitioner*, July, 1926, 117:29) concludes that in cases of dilated hearts in children, the sequellæ of myocarditis, endocarditis or pericarditis resulting from rheumatic or other infections, a course of Nauheim baths will restore the patient to health much more rapidly, certainly and surely than any other form of treatment.

Syphilitic Heart Disease.—Warthin (*Am. J. Syph.*, Jan., 1926) reports eight cases to show that sudden death may occur in latent syphilis as the result of an acute exacerbation of previously mild, latent processes in the heart and aorta. The pathologic character of the active lesion differs from that of the chronic lesions in the more marked edema and the greater polymorphonuclear cell content of the infiltrations.

The so-called cardiac failure as a result of syphilis may be brought about in several ways: (1) Myocardial atrophy and fibrosis due to slowly progressive, mild syphilitic lesions in the myocardium; (2) Syphilitic disease of the coronaries; (3) Combination of these two processes; (4) Syphilis of the aortic valve; (5) Combination of myocardial syphilis and syphilitic mesaortitis; (6) Acute exacerbation of a previously latent syphilis.

Most observers agree that in syphilitic heart disease early involvement of the endocardium or of the myocardium is very infrequent. Warthin has shown that in the second stage of the infection, so far as the pathologic anatomy indicates, it is very active in the heart muscle at this time. Nevertheless, Harlow Brooks states that the production of clinical symptoms in this stage is very infrequent. In most of these cases very prompt relief follows the administration of antiluetic treatment.

The average case of syphilis of the heart is seen by the cardiologist about twenty years after the initial infection. Horder (*Lancet*, April 3, 1926) feels that the invasion is much earlier than this and can frequently be found if carefully looked for. It should be remembered that the most important and the most serious lesions produced in the heart by syphilis are those of the myocardium. This fact is emphasized by Warthin, Brooks and others.

Cotton (*Brit. M. J.*, 1926, 1:855) reports an unselected group of 58 cases of syphilitic

aortitis which were treated under intense observation along with an equal number of control cases who received no treatment. He concludes that specific treatment is indicated in syphilitic aortic disease, that no danger is attached to the intravenous injection of arsenic in moderately large doses and that arrest of the disease may be due to specific treatment given over a period of five years.

Paroxysmal dyspnea was present in syphilitic aortitis only when associated with aortic insufficiency, hypertension or aneurysm of the aorta. It is not a symptom due directly to syphilitic aortitis, but nevertheless is important in the differentiation between aortic insufficiency of syphilitic and rheumatic origin. (Keefer and Resnik: *Archives of Int. Med.*, 1926, 37:264).

Prognosis of syphilis of the heart and aorta depends on early diagnosis and properly instituted treatment. On the whole the prognosis is generally unfavorable, due to the fact that spirochetes are found not only in the myocardium itself, but frequently in the coronaries. When untreated, the lesion is generally progressive. If the diagnosis is made early and treatment is prompt and adequate, there is a good chance of relative recovery. As a rule, however, in cardiovascular syphilis death comes within three to five years from the beginning of manifest symptoms.

Most clinicians are agreed that full courses of mercury and iodides should be given before arsenicals are prescribed. A detailed description of the treatment is published by Brooks. (*Interstate P. G. Med. Assoc.*, Oct. 12, 1925).

Babcock (*Ann. Clin. Med.*, 1926, 4:933) reports a new treatment of thoracic aneurysm by turning into the internal jugular vein the blood from the common carotid artery with its great velocity and high pressure. This diminishes the intravascular tension in a thoracic aneurysm by increasing the velocity of blood through the sac. Pain was relieved, the aneurysm reduced in size, the myocardial tone improved and the patient returned to work.

Subacute Bacterial Endocarditis.—Very little, if any, progress has been made in the treatment of this condition. There are numerous articles in the past few years stressing the various symptoms and signs which in most cases are pathognomonic. The disease is more common in young adults and about twice as common in males as in females, beginning very insidiously and continuing on an average of three to nine

months. In the treatment of this condition we have not found any of the newer drugs of value. Intravenous injections of gentian violet, mercurochrome, sodium cacodylate, etc., have had no apparent effect on the course of the disease.

As this infection does not seem to attack a healthy valve, but one which is already damaged by infection or congenital disease, it seems plausible that greater attention should be paid to prevention. Those known to have valvular heart disease, or congenital lesions of the heart, should be followed up carefully. All foci of infection should be removed, sufficient rest periods be emphasized and occupations be obtained that are suitable for the individual case.

In discussing *acute pericarditis*, Cabot ("Facts on the Heart") draws attention to the preponderance of this disease in males; to the infrequency of the friction rub, which was heard in only 21 percent of 186 cases; and the inconsistency of pain as a symptom, being present in only 4 percent in his series. Pericardial effusion was recognized during life in nine cases out of the 65 proved at necropsy. When effusion is present in considerable amount, it can usually be recognized by means of the roentgen-ray.

Goiter Heart

Liljestrand and Stenstrom (*Acta Med. Scandinav.*, 1925, 63:99) estimate the blood output from the heart in eleven exophthalmic goiter patients at 80 (in the female) to 100 percent (in the male) above normal. This involves a considerable increase in the work of the heart.

Meyer and Sulger (*Med. Klin.*, May 28, 1926, 22:838) found, among 90 goiter patients, 39 with enlargement of the heart. Both ventricles were usually affected. The hypertrophy of the heart was more frequently due to stenosis of the trachea than to hyperthyroidism. Re-examination of the patients who had been operated upon revealed a persistence of the hypertrophy in all but seven cases. Some (fourteen) of the others, including those who had had normal hearts previously, had a larger heart two or three years after the intervention than they had had before.

The frequent occurrence of auricular fibrillation, either permanent or paroxysmal, as a complication of toxic goiter is generally recognized.

Barker (*Ann. Clin. Med.*, June, 1926, 4:1016) reports that about 15 percent of patients with toxic goiter have auricular

fibrillation. In some cases the fibrillation entirely disappears following surgical removal of the thyroid. If this is not the case, the use of quinidine sulphate shortly after the operation should be considered. In most cases the drug restores normal mechanism.

In postoperative thyroid shock, auricular fibrillation is very common. Digitalis in these cases is of no avail and by some deemed contraindicated.

Drug Therapy

Digitalis.—We should know the drug that we are using, its strength and value, and we should give it until we get results or until we have toxic symptoms which prevent its further use.

Pardee (*N. Y. State J. Med.*, 1926, 26:165) concludes his "Treatment of Certain Cardiac Emergencies" with the following: (a) Epinephrin must be used with caution in the presence of a weak pulse due to cardiac failure; (b) If digitalis is to be given for cardiac emergencies it must be given intravenously and in much larger doses than we are accustomed to use; (c) Do not give digitalis intravenously unless you are certain the patient has not been taking digitalis within the two weeks preceding.

Ephedrine.—While this drug has been of some service in the treatment of hypotension due to acute surgical conditions and shock, it has not yet been shown to be of any service in cases of so-called essential hypotension. The action appears to be similar to that of epinephrin. Because of its transient action it is scarcely a practicable remedy for continuous use.

Euphyllin is a most promising drug because it distinctly increases coronary flow. It is given in 0.48 gm. doses from two to four times daily. This drug can be administered by mouth or rectum, in a more concentrated solution intramuscularly or in specially prepared ampules intravenously (Hermann: *M. Clin. N. America*, Jan., 1926).

Novasurol.—In the past year several articles have appeared on the action of novasurol. While the drug has proved itself a valuable diuretic, it still in no way supplants digitalis or theobromine. It should probably be used only after a thorough trial of the former or after the diuretic effect of the digitalis has worn away. Toxic effects of novasurol may occur in the form of stomatitis, salivation, diarrhea, etc. There can be little doubt that novasurol relieves edema when all other measures fail. It has been shown by Keith (*J.A.M.A.*, 1925, 85:799) that many times when novasurol alone fails,

combined with ammonium chloride, it brings about the desired results. The drug is generally administered in 1 cc. doses, intramuscularly or intravenously, twice weekly. Its best results are observed in myocardial failure with generalized edema. As renal damage may be caused, the drug should not be given in face of lessened urinary output or nitrogen retention.

Ammonium Chloride was shown first by Keith, Barrier and Whelan (*J. A. M. A.*, 1925, 85:799), to have a marked diuretic effect in some cases of nephritis. Since then

it has been used in cardiac edema, particularly when complicated by nephritis, with striking results.

Cardiazol, a drug obtained by a new method of synthesis by the action of two molecules of hydrazoic acid on cyclohexanone, has been applied recently in European clinics by Krehl and Hemmerling. Its chief indication of application is cardiovascular collapse. Waldbott, (*Med. J. & Rec.*, June 16, 1926) reports three cases with good results. The drug seems worthy of further trial.

Modern Eyeglasses

By BURTON HASELTINE, M.D., F.A.C.S., Chicago

THAT branch of ophthalmology which deals with the correction of errors of refraction presents certain problems differing from those encountered in any other department of medicine. Every physician knows that eye strain from optical defects is a factor for possible consideration in almost every patient who presents himself for examination.

Every physician does not know that the exact determination of the importance of this factor and its complete removal when present requires a highly complex combination of service. It requires, first, a high degree of technical skill in the determination of errors of refraction and other ocular anomalies; second, an extensive knowledge of the relationship between eye function and general health or disease; and, third, great refinement and precision in supplying the mechanical correction for eye defects when present.

The first two of these requirements the qualified ophthalmologist is fully competent to furnish but for the third he is almost wholly dependent upon the skill and integrity of the optician. In this field there still exists much confusion and lack of intelligent cooperation.

Because of the incidental fact that a considerable element of profit is involved in the sale of materials for the correction of eye defects, a large industry has developed in the making and selling of spectacles and eye glasses, having nothing at all to do with the honest practice of ophthalmology. This industry has, in fact, become one of the most conspicuous forms of quackery now flourishing in this country. Large organizations are maintained, many periodicals are published, advertising campaigns are con-

ducted and legislation is "influenced" in the promotion of this business. The success of the enterprise depends entirely upon making people believe that the treatment of certain abnormalities of the eye is not part of the practice of medicine. Laymen are rather prone to "fall for this bunk" and even physicians are not immune to the effects of such propaganda.

Naturally, with the spread of this imposture, there is increasing antagonism upon the part of physicians who see its mischievous results and they are in danger of coming to regard all so-called opticians as crooks of varying degree. It is important, therefore, to emphasize the fact that there does exist a class of high grade makers and sellers of optical goods, as different from the glass-fitting fakers as the ophthalmologist is different from the quack. They do not depend upon the spread of misinformation among ignorant people, but upon honest cooperation with the ophthalmologist and they are his indispensable allies. If we reflect that refraction is an important part of the work of every eye specialist and compare the refined optical service we now have with that available, say, twenty years ago, we realize our indebtedness to these allies.

Bifocal Lenses

Probably the most striking instance of their improved service is the help they have given us in dealing with the function of accommodation. In this field we are confronted with the problem of furnishing combined lenses of different focal distances in such a way that the change from one to the other may be instantaneous and without conscious attention from the wearer. This problem presents itself in two very different

situations, one of which is to some extent known even to laymen; namely, the loss of accommodation normally occurring in later life. The other situation is known to relatively few ophthalmologists but the number is rapidly increasing. This is the condition of hypermetropia with concomitant strabismus, in children, in which, by the method of Suffa, we obtain binocular vision at the near point, which would otherwise be impossible.

This use of bifocal lenses in this condition is so little known that a brief explanation is called for: It depends upon the close association between the functions of accommodation and convergence. In children with high hypermetropic error, the defect is overcome by an excessive use of the accommodative mechanism, and the added stimulus to convergence inseparable from it produces the excessive action of the interni muscles, making the eyes "turn in"—that is convergent strabismus. The usual treatment for this is to prescribe a complete or slightly excessive correction of the hypermetropic error, for constant wear, in the hope that, with removal of accommodative strain, the eyes will spontaneously assume a position of parallelism. If this fails, as it frequently does, a muscle operation is usually considered necessary.

We are indebted to the late George Suffa, of Boston, for suggesting in this situation the bifocal device—the most important improvement since Donders in the nonsurgical treatment of strabismus. He pointed out that the full or over correction for distance defeats its own purpose by making the use of the eyes for far seeing less clear and less agreeable, thereby diminishing the already too slight impulse toward binocular vision. Likewise, when parallelism is established for distance, it is often lost when the eyes are used for near vision because even the normal accommodative stimulus is sufficient to upset the delicate balance. By the simple expedient of giving a slight under correction for distance, with a plus sphere added for near work, he obtained parallelism for all distances and saved many a child from the ordeal of muscle surgery. As the fusion impulse becomes stronger, the near correction is gradually removed and finally normal binocular vision is established with the distance correction worn for all use.

In both these situations bifocal lenses have become indispensable and as they are now made they are worn with pleasure both by the strabismic child and by the early presbyope. We can now relieve the early

strain of beginning presbyopia with no annoyance to the patient, thus avoiding that old time "Hobson's choice" between a clumsy spectacle outfit and reduced eye function.

The Middle Distance

However, as loss of accommodation becomes more complete we soon reach a stage in which the bifocal does not perfectly meet the requirements. It gives a perfect adjustment for the so-called reading distance and for the "far seeing" of twenty feet and beyond. But there remains an important range between, say, sixteen inches and six feet, wherein the vision is not satisfactory through either the upper or the lower segment. The increasing effort necessary to see at this distance often produces a return of eye strain that is both distressing to the patient and perplexing to the ophthalmologist. Obviously this strain can be relieved if a correction for this distance can be made available.

Opticians have repeatedly tried to meet this problem with some form of trifocal lens; that is, by the introduction of a third segment adjusted for this range. Most of these efforts have failed, partly because of mechanical difficulties and partly from lack of understanding of the exact needs. With the very generous cooperation of experts in optical work, the writer has been able to overcome these difficulties and has now had more than two years' experience in prescribing trifocal lenses, with highly satisfactory results.

It has been conclusively shown that there is a permanent place for trifocals and we are able to define with considerable accuracy their exact applicability. They should not be employed until the presbyopia has amounted to about seventy-five percent loss of normal accommodative power; that is, if the patient still has the ability to accommodate to the amount of one dioptre or more, he does not need and will not accept a trifocal correction. In myopes also the acceptance of trifocals will be delayed. The personality of the patient and the nature of his work must be considered. Such refinements as these are for patients of the discriminating type and are wasted upon fundamentalists.

Musicians, especially pianists who must read at arm's length and public speakers who use manuscript, are examples of people to whom the trifocal has proved a boon. It was the effort to help these patients that led to our first experiments. The field has

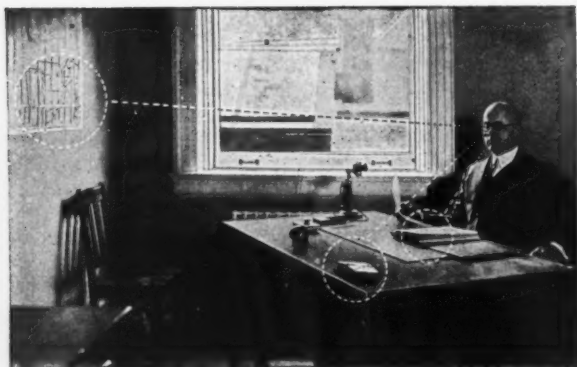


Fig. 1

rapidly extended and we now have many people using trifocals for constant wear with the greatest satisfaction. One interesting discovery in this connection should be noted: The addition of a second jump line between lenses of different focal power does not add to the wearer's annoyance as we had expected, but rather lessens it. We now discover that the area of blurring is caused not so much by the line of lens demarkation as by the lack of any correction for the middle distance. The supplying of this lack, therefore, renders him less conscious of the break and removes many of his annoyances, such as the familiar difficulty in going up and down stairs.

The intermediate correction should be from three-fourths to one and one-half dioptres plus sphere, added to the distance correction, according to the degree of presbyopia. It must, of course, include the central field and its width at the center should be from eight to sixteen millimeters, being wider for indoor workers and narrower for outdoor use. It is highly desirable that the intermediate correction should extend to the lateral margins of the lens and that it should increase in width as it approaches the margin.

To make clear the importance of this it is necessary to make the following observation: The use of the eyes in marked deviation from the directly front position is almost entirely in the middle distance. If we look intently at a far distant object we instinctively turn the face directly toward it. If we use the eyes for near work, as in reading, they deviate little from the directly forward line of vision. But in our almost constant visual activities involving neither reading nor far distance sight we use the eyes in markedly lateral positions and en-

tirely in the middle distance range. A perfect trifocal lens, therefore, must furnish an intermediate correction increasing in area toward the margin so that each eye can use the intermediary portion while looking markedly to either side.

Trifocal Lenses

Because of certain mechanical difficulties it has been very difficult to make such lenses in the invisible type without an almost prohibitive cost, but this problem now seems to be

solved, and if so the trifocal will quickly supplant the bifocal with the majority of discriminating patients who have reached the stage of complete presbyopia. This can be proved by making them of cemented lenses which give perfect service except for the defect of visibility.

Meanwhile there is available, at moderate cost, an invisible trifocal with a curved intermediary portion concentric with the lower segment, giving a perfect correction for forward vision with sufficient lateralization to be fairly satisfactory. This has been prescribed in our practice in suitable cases since its introduction, usually with satisfaction to the patient. This lens is known by the trade name of the Ultex trifocal. It is open to the one objection that it has an inadequate lateral field and does not permit the use of the intermediate correction by both eyes at the same time while looking markedly to one side. This objection can be overcome only by the writer's device of a trifocal having an intermediate correction such as is shown in the accompanying cut (Fig. 4). This lens has been in use in a few cases as long as eighteen months and has proved to be a perfect device but the great cost of its manufacture has heretofore prevented its extensive employment.

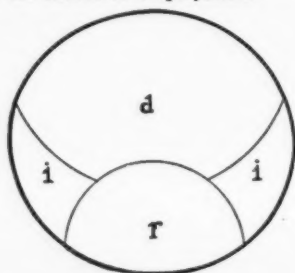


Fig. 2

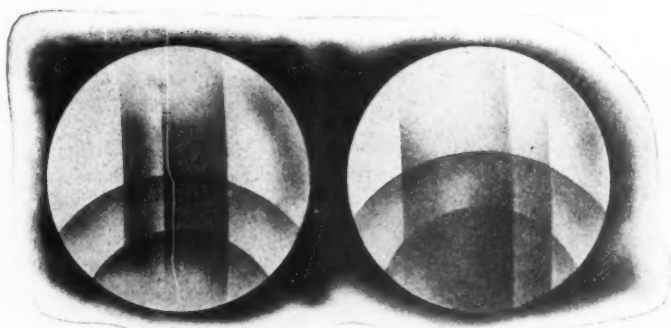


Fig. 3

Special Lenses

In addition to those needs which are common to all eye patients, there are certain occupations requiring the use of the eyes in ways calling for special lens combinations. Workers, for instance, who need accurate near vision while looking in an upward direction, require that the near work segment be placed elsewhere than in the lower portion of the lens. In our own field of work we have a striking example. Particularly in otolaryngology the problem of a presbyopic correction for work with the head mirror has been difficult. If the operator wears a full sized plus lens he is annoyed by the difficulty of seeing instruments upon a table or objects around the room. The ordinary bifocal with a lower segment is useless to him. The placing of a plus lens in the mirror aperture has been tried, but this makes possible the use of only one eye which, for much of our necessary work, is unsatisfactory. The best solution of the problem is that suggested by Dr. Gilbert Palen, of Philadelphia, who introduced the bifocal with a circular central segment, surrounded by the distance correction as shown

in Figure 5. This is a perfect glass for use with the head mirror and provides satisfactory lateral vision in all directions.

It is a slight modification of this device which has solved the problem of satisfactory glasses for the presbyopic golf player. Every golfer, with the coming of presbyopia, is greatly annoyed by the fact that he can no longer see the ball clearly at the tee, and if he tries a glass which removes this difficulty it bothers him in following the ball in its flight. These annoyances are now removed by the device we may well call the golfer's bifocal. The central target is circular, about sixteen millimeters in diameter, placed below the middle area of the lens and carries the patient's distance correction, plus a three-fourths to one and one-fourth dioptric sphere. The surrounding portion of a preferably circular lens carries the distance correction only. With this combination he has perfect vision for seeing the ball in making any play, while the distance correction is instantly available for following it, even in its most erratic flight.

The understanding of these various lens combinations will be greatly facilitated by

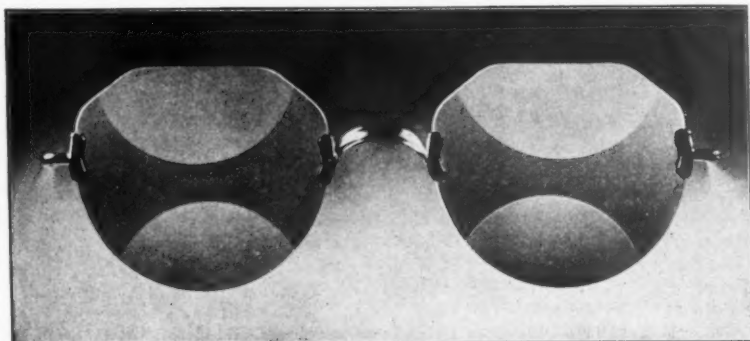


Fig. 4

reference to the accompanying cuts which are kindly furnished by the Uhlemann Optical Company of Chicago.

Figure 1 is intended to show the different ranges of vision through the three segments of the trifocal lens. This is an inadequate representation since it gives no idea of the wide lateral range of the middle segment which includes the entire top of a desk, such as is shown in the picture.

Figure 2 shows one of the early and unsuccessful efforts to produce a satisfactory trifocal. This type is mechanically easy to make, and has a lateral field superior to the Ultex model but it is practically useless because it supplies no intermediate correction for looking directly forward.

Figure 3 represents the Ultex trifocal, showing two arrangements of spacing, the one with larger upper segment being for outdoor wear and the other for indoor workers who use no correction for far distances. These lenses are available at moderate cost for all ordinary combinations of spheres and cylinders.

Figure 4 shows the type of trifocal which we have devised as fully meeting all requirements. It can be made in cemented lenses for any prescription, at low cost, but in one-piece lenses it has been difficult to make in all, and impossible in some, combinations. This difficulty has now been overcome and a perfect trifocal is available at a cost not incompatible with general use.

Figure 5 shows the Palen bifocal, suitable for all presbyopes who need near vision above the middle line, as illustrated in the

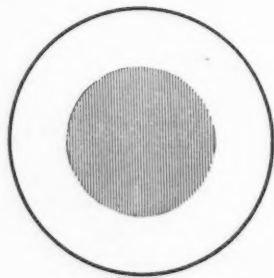


Fig. 5

use of the head mirror. By reducing the diameter of central segment, lowering it slightly and grinding it to intermediate instead of near vision strength we produce the "golfer's bifocal".

Many other special lens combinations are now available, such as glasses adapted for rifle shooting, billiard playing, etc., and we know at least one myopic gentleman who wears a specially made pair of spectacles in the swimming pool. Such refinements as these not only aid in the enjoyment of good eye function but contribute materially toward the conservation of good vision for the later years. There is growing appreciation of such service among discriminating people and it has no need to be "sold" by blatant advertising.

The worthlessness of a so-called eye examination made by one who knows nothing of eye disease may not be obvious to every patient but every patient does know whether or not he has good vision and comfortable eyes.

122 S. Michigan Avenue.

Colloidal Sulphides in Medicine

A Preliminary Clinical Report

By HERMANN HILLE, Ph.D., Chicago

IN the textbooks on pharmacology we find the general statement that sulphides are irritant and toxic. This, of course, applies only to the soluble sulphides of the lighter metals, lithium, sodium, potassium, calcium, etc., which readily liberate the irritant and toxic gas H_2S . The sulphides of the heavy metals, from copper upward, do not possess the irritant and toxic properties of the former, for the reason that they are insoluble in water and do not readily generate H_2S .

In fact, these sulphides appear to be less toxic than the other salts of the heavy

metals. The human organism utilizes this principle and detoxicates these salts largely by excreting them in the form of sulphides. The same principle has been employed for centuries also in medicine in the form of sulphur water and, in more recent times, sodium thiosulphate to counteract or neutralize the toxic effects from the salts of mercury, lead, bismuth, etc.

These facts logically lead to the question, why use toxic salts in the first place and then detoxicate them after the damage is done? Why not use them in detoxicated form, as sulphides, to begin with? But—may not

the valuable therapeutic action have been lost, together with toxicity, in combining the metals with sulphur?

The clinical results reported in this paper demonstrate that these sulphides apparently have lost none of their therapeutic properties but that, on the contrary, the valuable properties of sulphur have been added thereto, especially the hypnotic effect, which has proven a valuable adjunct in diseases where sound sleep of the patient is of importance.

One of these, the sulphide of mercury, was used in medicine in the 17th and 18th centuries as "*pulvis hypnoticus*" or "*aethiops narcoticus*". In common with all sulphides, it has distinct hypnotic effects. But, as is the case with practically all insoluble powders, its action is uncertain and unreliable.

There is, however, a way of making these valuable sulphides available for medicinal purposes; namely, by rendering them soluble by extreme subdivision. Such a solution of an ordinarily insoluble substance is known as a colloidal solution, and in this form the medicinal properties, which are latent in the insoluble substance, become available without possessing the corrosive and toxic action of the crystalloidal salts.

The colloidal form, therefore, offers therapeutic advantages which neither the insoluble, amorphous, almost inert form, nor the crystalloidal soluble salt with violent chemical activity, possess. Hence, the colloidal form of a substance, being the happy medium between the two extremes of the too coarse and sluggish on the one side, and the too active and toxic on the other, is the ideal form of medication, except when the corrosive action of metallic salts is needed.

That these theoretical considerations are based upon sound reasoning is attested by the evidence embodied in the results obtained by laboratory methods and in thousands of clinical cases.

Preliminary animal tests, to determine the lethal dose of mervanol, a colloidal solution of equimolecular proportions of the sulphides of mercury and copper, for rabbits, gave the following results:

Rabbit No.	Wt. Gm.	Human Dose cc. (à 5 cc.)		Results
1324	535	0.6	15 Intramuscularly	Alive and Well
1317	765	1.3	25 "	" " "
1318	790	0.8	15 Intravenously	" " "
1319	910	1.6	25 "	" " "
1321	945	2.3	35 "	" " "
1320	1010	3.6	50 "	" " "
1323	1045	4.8	65 "	Died in 6½ days: liver black
1322	1060	6.0	80 "	Alive and Well

These results show that the lethal dose of mervanol, for rabbits, is more than sixty times larger than the effective human dose. Only one of the eight rabbits died; namely, the one receiving 65 times the human dose, and it died only after six and one-half days. Another rabbit receiving 80 times the human dose remained alive. So we see the animal tests confirm the clinical observation that mervanol is nontoxic in therapeutic doses.

In the early fall of 1918 there descended, like a thunder bolt from a clear sky, first upon our Army and Navy camps and later upon the whole country, the terribly devastating pandemic of so-called "Spanish Influenza", in a few short months snuffing out more human lives than had the holocaust of four years of the most destructive war then raging. This scourge seemed to offer an excellent opportunity for the wholesale clinical study of the colloidal sulphides of the heavier metals, the value of which had already been established. The writer immediately presented his ideas, together with reports of results with these products in pneumonia and other infectious and septic conditions, to the commanders in charge of the medical departments at Great Lakes Naval Training Station and Fort Sheridan, both in Illinois.

Both of these gentlemen, Dr. Owen J. Mink, of Great Lakes, and Dr. Theo. S. Proxmire, of Fort Sheridan, saw the logic of the argument and each appointed one of his officers to give special attention to the clinical use and study of the sulphides of copper and mercury on the one hand, and of the sulpharsenites of these two metals on the other.

Due to the fact that during the first weeks of the pandemic the number of cases was out of all proportion to the number of physicians, nurses, attendants, etc., and also due to the suddenness of the onset and quickly fatal termination of the disease, no careful, scientific observation and records of the cases were possible.

Later on, however, when the situation was better in hand and the cases began to diminish in number, more accurate records could be kept and it became possible to draw some definite conclusions from the results.

The reports of Dr. F. I. Ridge, of Great Lakes Naval Training Station, and of Capt. Edwin T. Jaynes, of Fort Sheridan—the former more detailed and scientific, the latter more of a general nature—never were

submitted to a medical journal for publication, for the following reason:

The virulence of the influenza at the beginning was so great and the pneumococci, streptococci and staphylococci had so easy a task in completing the destruction so viciously started by the influenza bacilli that these colloids and other medication then used were too late and had little chance of effect. Because of this it was impossible to determine the real value of these sulphides, at least in that virulent type of influenza of the earlier period of the pandemic. Hence the records of that earlier period, which include Dr. Angell's report and partly Dr. Jaynes' preliminary report, are of little value per se. Further clinical data were necessary.

Although much clinical corroboration has in the past years been accumulated, still it has as yet been impossible to obtain the kind of clinical reports, in addition to Dr. Ridge's paper, that from a purely scientific consideration would be unassailable.

But the medicinal value of these colloids can no longer be questioned and for the good of the profession the results so far obtained can no longer conscientiously be withheld from proper publication.

In the earlier investigations two products were used, which are known as mervenol and armervenol.

Mervenol is a colloidal solution of mercury-copper sulphide in equimolecular proportions, containing 0.58 percent mercury sulphide and 0.24 percent copper sulphide. Armervenol is a colloidal solution of mercury-copper sulpharsenite, containing 0.41 percent arsenic sulphide (As_2S_3), 0.58 percent mercury sulphide (HgS), 0.24 percent copper sulphide (CuS).

One of the reasons why in both of these products mercury sulphide and copper sulphide are combined is the fact that a combination of the two makes a far more stable product than either of the two metals alone.

Clinical Notes Upon the Use of Colloidal Preparations of Mercury and Arsenic in the Treatment of Epidemic Influenza

By F. I. Ridge, Lieutenant (M.C.)
U.S.N.R.F.

Great Lakes Naval Training Station, Ill.

In order to determine the efficiency of any therapeutic agent in the treatment of a pathologic condition it is absolutely essential that one's experiments should be carried on with adequate controls and that concise and minute observations should be recorded. To fulfill these requirements was absolutely

impossible during the recent epidemic at Great Lakes, but an attempt was made to compare the different treatments and to arrive at some conclusion as to the best method of use.

In all cases, at the onset of the disease, a mild cathartic was administered and the nose and throat were treated. Hot drinks were administered every four hours, and aspirin or phenacetin and Dover's powders were given. The patients upon admission were divided into two groups as near alike as possible. In one the preliminary treatment was continued during the course of the disease. In the other the colloids, mervenol and armervenol, were used.

The colloids were administered according to the directions; i.e., one to five cc., intravenously or intramuscularly, each day, and twenty drops by mouth every two hours (the average intravenous dose was 3 cc., frequently 5 cc.). Both procedures lowered the temperature of the patients to a greater or less extent. However, those treated with the colloids apparently maintained a constantly lower temperature, averaging in the first series of sixty-five cases in each group compared, approximately four-fifths of a degree.

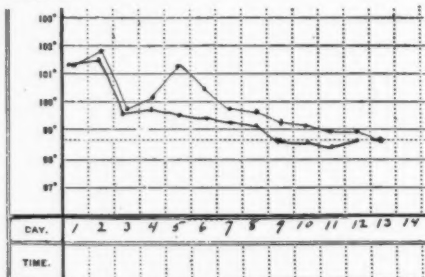


CHART No. 1

Average temperatures of influenza cases, uncomplicated by pneumonia, during the epidemic at Great Lakes Naval Training Station. Second series of 246 cases.

The upper curve line represents the average daily temperature, according to day of disease, of 123 cases receiving routine treatment.

The lower curve line represents the same of 123 cases receiving mervenol or armervenol.

After the intravenous injection of the colloids there was invariably a fall in temperature of two to three degrees. In several instances this crisis-like fall was permanent and the patient went on to recovery. However, similar occurrences were found with the other methods so that no definite precedence could be given to any one method of treatment on that account.

The effects of the different treatments upon the cardio-respiratory system were shown to be distinctly in favor of the col-

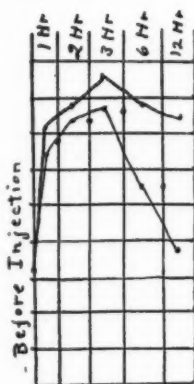


CHART No. 2

Showing comparative leucocytic response between Armervenol and convalescent serum. 90 cases.

The upper curve line represents the average increase in the number of leucocytes of 45 cases of influenza after intravenous injection of 3 cc. armervenol.

The lower curve line represents the average leucocytic response of 45 cases of influenza after intravenous injection of 100 cc. convalescent serum.

loids, there being fewer collapses and cardiac dilatations in that group than in those treated by other methods, and the pulse rate was, on an average, lower with a better tension. Respiratory rate by all methods remained practically the same.

In pneumonia complications, the distinction between the different methods used could not be so marked because of the rapid fatal endings in those cases, which prevented the fair trial of any one remedy. However, the groups treated with colloids resulted in fewer pneumonia complications than those treated by other methods. The ratio being four and one-half to six. The mortality rate of pneumonias treated by the different methods shows only 1 percent variation in favor of the colloidal preparations.

On one series of cases blood counts were made at frequent intervals to determine, if possible, which treatment elicited the greater response. Invariably these cases of influenza and pneumonia showed low leucocyte counts, in many instances below two thousand. In order to check results, blood counts were

made on the colloid group just before the intravenous injections were given, and one hour, three hours and twelve hours after the injection. In every case so tested there was an immediate response to treatment, as shown by a marked increase in leucocytes. In some cases four times as many as there were previous to infection. This increase elicited by the colloids was in practically all cases maintained for over the twelve-hour period and was seemingly concomitant with an improvement in the patient's condition. Many counts were taken where, before injection, there had been on an average of three thousand cells, after injection there were ten thousand each. These counts were made in a like manner on patients treated with convalescent serum; the quantity of serum used being as a rule one hundred cubic centimeters. After these injections there was a rise in the leucocyte count, but not so great as that when the colloids were used, and the increased count was not maintained for any length of time.

Questions as to the toxicity of the mercury and arsenic colloids cannot be discussed, as we did not find any cases where there were serious manifestations of either mercury or arsenic poisoning. Some cases were given as high as three cubic centimeters a day intravenously and twenty drops by mouth every two hours for three and four days without showing symptoms. Occasionally there was a mild purging and diuresis, but nothing violent. Nausea was quite uncommon and was no more marked in the colloid group than in the non-colloid. In several cases there was a mild dermatitis which can, in all probability, be attributed to the arsenic and mercury.

In conclusion, our observations warrant us in believing that the colloids of mercury

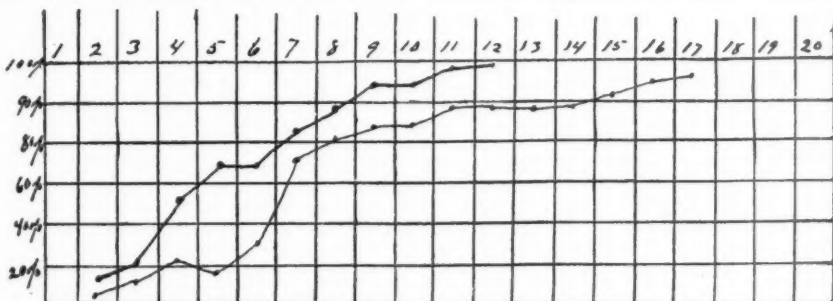


CHART No. 3

Showing average day of return to duty in uncomplicated cases of influenza. More than 300 cases. The upper curve line represents the mervenol-armervenol group; the lower curve line the group receiving "ordinary treatment."

A comparison of the two curves shows, for example, that by the fifth day after admission 70% of the mervenol-armervenol group had returned to duty as against 18% of the "ordinary" group.

and arsenic were of distinct benefit in the treatment of the epidemic influenza and its pneumonia. That this improvement is not due solely to the eliminative actions of the drugs, we believe is demonstrated in the remarkable leucocyte stimulation, as evidenced by our observations.

Clinical Observations with Mervenol and Armervenol in Influenza and Pneumonia at the Post Hospital, Fort Sheridan, Ill.

By Captain Edwin T. Jaynes, M.C., U.S.A.

During the epidemic of "Spanish-Influenza" at Fort Sheridan in September, 1918, I was designated by the commanding officer, Lt.-Col. Proxmire, to make clinical tests with mervenol and armervenol.

Owing to the strenuous duties at the Post, it has been impossible as yet to render a complete report. This paper is merely a preliminary statement.

I have used mervenol and armervenol in more than a hundred cases of influenza complicated with so-called bronchopneumonia. The dosage varied from 10 cc. to 30 cc. daily, administered partly *per os* and partly intramuscularly or intravenously. I usually gave 20 drops in a glass of hot water five or six times a day, also one or two daily injections of 5 cc. deep into the muscle or intravenously.

In this manner I have given more than five hundred hypodermic injections of mervenol and armervenol, but never had any complaint as to pain or irritation, nor did I observe any indurations and abscesses, with but one exception.

I never observed the slightest indications of toxicity even from prolonged treatment. Many of the cases had the daily dose for seven days and some of them for fourteen days in succession.

The analysis of mervenol and armervenol cases shows a much more favorable mortality in influenza complicated with bronchopneumonia than obtained generally in the recent epidemic, and this in spite of the fact that most of the serious cases were sent to the "Mervenol Ward." However, I do not feel that the number of cases was sufficient to justify definite conclusions as to the extent to which mervenol and armervenol favorably influence the death rate. I would need to have a much wider experience under more favorable conditions.

I did note improvement within two hours after intramuscular or intravenous administration of mervenol and armervenol, so definite that there was no room for doubt as to the cause.

Many of these cases made a good and speedy recovery, some after relapsing and receiving additional doses of these colloids. But it was my experience that if a patient did not show marked improvement in three days, no treatment of any kind appeared to be of the slightest benefit.

During the epidemic I had in my ward a number of cases suffering from chronic conditions, such as arthritis, etc. As soon as they developed the typical symptoms of influenza they were given mervenol or armervenol. It is a singular fact that not one of these cases developed pneumonia complications, and all recovered promptly in three to six days.

These results strongly indicate that the number of pneumonia complications may be reduced by the prompt administration of the colloids.

We medical men have had too many disappointments to become easily enthused about anything new. But my experience with mervenol and armervenol has been sufficient to convince me that they are worthy of serious consideration, the more so because of their apparent freedom from irritant and toxic properties. For the good of the profession they ought to be thoroughly tested by competent clinicians.

Opinions of Dr. Angell, Naval Camp Near Zion City, Ill.

Dr. Angell, during the influenza-pneumonia pandemic of 1918, used quarts of colloidal mercury sulphide (mervenol) in several hundred cases and supplied the writer with nurses' records and clinical charts of cases so treated and of controls.

Dr. Angell was very favorably impressed with the results. But, unfortunately, the records do not permit definite, scientific conclusions because, "As records were made by untrained men allowance should be made for this factor, which has made the larger part of our records useless in forming conclusions."

Pneumonia

In six cases of lobar pneumonia, reported by Dr. R. W. Adkins, from the Dayton (Ohio) State Hospital, 2 cleared up within three days under the use of mervenol; 2 were practically well in seven days; and two died—one from acute cardiac dilatation and one from the effects of acute alcoholism.

Twelve cases of lobar and bronchopneumonia and postoperative pneumonia were reported by various observers, in which the sole or chief treatment was the colloidal sulphides, administered parenterally and

by mouth. All of these cases cleared up in from two days to a week. The following case is typical:

Double Lobar Pneumonia

Physician: Dr. Espy L. Smith, Chicago, Illinois.

Patient: Mr. L.; Occupation, Baker; Age 60. (Private practice.)

History: When first seen on Saturday night both lungs were involved. Temperature 104°. He was given usual treatment.

Present illness: Sunday morning his condition was worse. Temperature 104.5°F.; pulse arrhythmic; profuse perspiration. Both lungs involved; consolidation of right lung.

Diagnosis: Double lobar pneumonia.

Treatment: 6 cc. mervanol intravenously in one dose, and 20 minims in water by mouth every two hours for four days; then four times a day for six days.

Conclusions: Prior to the use of mervanol the patient's condition was hopeless. That is the reason why I gave such a large dose of mervanol intravenously. The result was as remarkable as it was unexpected. In 24 hours his temperature was normal. During the four days following, temperature was 97° at 9 A.M. and normal in the evenings. Steady improvement continued and patient was discharged, cured, in 15 days. He returned to work three weeks after the first dose of mervanol.

Dr. Charles G. Morris, of Detroit, Mich., reports:

"In over fifty cases of pneumonia where mervanol was used during the past two years I have lost but one case, despite the fact that my practice is among the ignorant and superstitious foreigners, who will not tolerate fresh air or use water for bathing in cold weather. Out of twenty-one additional cases of pneumonia seen during the same period, in which I did not use mervanol, I lost five cases.

"As to the manner of using mervanol, I give deep intramuscular injections, one cc. per day in the muscle of the arm or gluteal region. In severe cases, in addition to hypodermic injections, I give 5 to 20 minims in warm water every one to three hours by mouth, according to the age of patient and the gravity of the condition.

"I have never observed any irritation or toxic effects from hypodermics or oral doses with one exception. This consisted in pain at the seat of injection, probably due to striking a nerve."

Tuberculosis

Encouraging results have been reported by a number of physicians from the use of mervanol and armervanol in tuberculosis.

Dr. William H. Ross, of Waterloo, Iowa, reports 6 cases.* Three of these were moderately advanced, active cases, and three

were far advanced, open cases. One of the open cases, after showing considerable improvement under treatment, contracted an acute respiratory infection and shortly thereafter developed symptoms of tuberculous meningitis, from which she died. The other five cases now seem to have the disease arrested. One typical open case is reported in detail.

Mrs. B.M.S.; age 36; married; housewife.

History: Was diagnosed as tuberculous several years ago. Came to me for treatment in July, 1922. At this time she was very weak and weighed 82 pounds, fully dressed. Was very nervous, with severe headaches and pains in back and legs. Coughed and expectorated copiously; Tubercle bacilli present. Temperature 102.6°F.; pulse 118. No appetite; digestion impaired; diarrhea at times. Normal weight 120 pounds.

Present Condition: Physical examination revealed moist and bubbling râles over most of the left lung with signs of cavity formation. Moist râles over one half of right lung.

Diagnosis: Pulmonary tuberculosis; far advanced.

Treatment: On July 19, 1922, patient was put at complete rest in bed in the fresh air, given tonics and attention to disordered digestion and bowels. She did not respond satisfactorily so on August 24 she was placed on armervanol, 40 minims, three times a day, by mouth, and 2.5 cc., intravenously, each alternate day. In about two weeks she became salivated—breath foul and pains in stomach.

Armervanol was discontinued until symptoms cleared up—about ten days—then started again, giving 20 minims orally, t.i.d. and 1 cc., intravenously, each alternate day. This dose was well taken, and was then gradually increased until the former full dose was taken and tolerated.

Progress: The steady improvement from this time on was gratifying. The appetite improved, stomach and bowel symptoms cleared up and the patient gained from one-half pound to 3 pounds per week until, at the end of May, 1923, she weighed 123½ pounds.

She was kept at rest in bed until March, 1923, when she was permitted to come downstairs for meals. In April she was given exercise, 15 minutes walking twice daily, and by June 1 she was exercising and riding in an auto two or three hours daily.

The temperature and pulse came down to normal during the latter part of November, 1922, and have remained so since. She sleeps well, has no aches or pains; stomach and bowels are normal and she does not tire easily. No expectoration; slight cough only at times.

From August 24, 1922, to May 30, 1923, this patient was given armervanol, 29½ ounces orally and 177 cc. intravenously.

*Complete clinical records of all of these cases, as well as most of the others mentioned in this paper, are on file, and are summarized to economize space.

August 21, 1923: Patient continues to improve.

One other patient showed symptoms of poisoning with the heavy metals, following large doses given at first. These cleared up at once on stopping the medication. Treatment was resumed with smaller doses which were gradually increased to full dosage without untoward results.

Dr. C. Stuart Hutchison, of Cactus, Arizona, reports a number of cases of pulmonary tuberculosis treated with the colloidal sulphides, but his records are not sufficiently complete to warrant summarizing them. His general impression is, however, that these drugs are decidedly beneficial. He notes a thinning of sputum which was formerly thick and tenacious following their use.

Syphilis

*Report of Dr. R. H. Paterson,
Hamilton, Canada*

In July, 1925, you were kind enough to send me some colloidal mercury sulphide which I have tried in the venereal disease clinic at the General Hospital here. We have been using the Ontario Government phenarsenamine for intravenous treatment.

All of the patients treated with colloidal mercury sulphide (mervenol) were in the tertiary period; all have had from 25 to 40 weekly treatments with phenarsenamine; and none had ever given a negative Wassermann reaction.

The treatments with mervenol were given intravenously, 3 cc., once a week, and in no case was there any sign of reaction whatever. No other treatment was given, except that all patients have mercury ointment for use at home as inunctions.

One case of tabes does well on the intravenous colloidal treatment and can be kept at work as a tailor while taking it; if he misses a treatment he becomes dizzy and unsteady on his feet.

Owing to these patients being "free" cases, we have had some delay in rounding them up for a blood test one month after last treatment, but results in 13 cases showed 53.8 percent negative, as follows:

Mrs. Mi.	Wassermann negative after 6 doses		
Mrs. R.	"	"	" 6 "
Mrs. D.	"	"	" 3 "
Mrs. W.	"	"	" 2 "
Mrs. Ma.	"	"	" 5 "
Mrs. McG.	"	"	" 5 "
Mr. W.S.	"	"	" 2 "
Mrs. R. C.	"	++	" 6 "

Mrs. My.	"	+++	" 6 "
Mrs. B.*	"	+++	" 6 "
Mrs. S.	"	+++	" 3 "
Mrs. J.	"	+++	" 3 "
Mrs. G.	"	+++	" 4 "

*Hereditary.

Discussion

The clinical reports here presented are only a small portion of the mass of evidence at hand. Many additional reports of the same general character, covering several thousand cases of different diseases, acute and chronic, of infectious and obscure origin, are on file.

We are fully aware of the defects of most of these reports when considered from a purely scientific angle and we do not offer them as conclusive evidence. But it cannot be denied by anyone familiar with the data, that they make up in quantity whatever may be lacking in quality, and that they serve as a sound basis for further clinical investigation on a large scale. In fact, the door has been opened to fertile fields of investigation that promise, to many competent clinicians, rewards limited only by their own capacity in skill and in vision.

But all the labor, all the time, all the effort expended in the endeavor to reach the goal will largely, if not entirely, be spent in vain unless some system for *standardizing colloidal preparations* is adopted. This seems to have been completely ignored in past investigations, which has led to contradictory and confusing results, to the disadvantage of colloids and the resulting loss to medicine of reliable data and dependable remedial agents. Until that is accomplished it is necessary that the source or mode of manufacture of the colloid investigated be given, for there are wide differences in toxicity and therapeutic action of the same colloids when prepared by different methods. There are also wide, often contradictory, differences in the results obtained with the same product when the colloidal behavior of the product, which is different from crystalloidal behavior, is disregarded. It is hoped to make this all-important subject the kernel of a special paper.

Conclusion

This treatise invites the attention of the medical profession to the great therapeutic value already established and the still greater possibilities of the insoluble sulphides of the metals in colloidal form and their relative nontoxicity. A large volume of clinical data, covering several thousand

cases of practically all infectious and septic diseases, is here outlined for the purpose of inspiring competent clinicians to systematic clinical investigation with these nontoxic, yet highly efficient, colloids.

In practically all reports received the results from the administration of these colloids were very similar and may be summarized as follows:

- 1.—Practically nonirritant.
- 2.—Practically nontoxic.
- 3.—Lower temperature, often crisis-like.
- 4.—Lower pulse, with better tension.

- 5.—Fewer collapses.
- 6.—Fewer cardiac dilatations.
- 7.—Better respiration.
- 8.—Better elimination.
- 9.—Better sleep.
- 10.—Greatly accelerated recovery.
- 11.—Fewer pneumonia complications.
- 12.—Lower mortality rate.
- 13.—"Remarkable leucocyte stimulation."

Systematic investigations at several of our Universities are already under way, and the results will be published in due time.

589 East Illinois Street, Chicago.

Recent Progress in Endocrine Therapy

By HERMAN J. ACHARD, M.D., Glendale, California

Managing Editor, *The Endocrine Survey*

I HAVE been asked to review some of the recent progress in endocrine therapy, and I do so gladly because some very remarkable advances have been made in this field during the past few years. This is so emphatically true that a certain *embarras de richesse* makes it difficult to select from the many interesting topics. However, I may be permitted to indulge my personal bias, discussing, on this occasion, three outstanding advances in endocrine therapy which pertain to the perfection of endocrine remedies from the parathyroids, the liver and the graafian follicles of the ovary, although I shall refer also to thyroxin and to insulin.

The Parathyroid Active Principle and Parathyroid Therapy

The possibilities of parathyroid therapy were brought to the attention of the medical profession several years ago through the publications of Vines and Grove, who recorded astonishing advantages from this therapeutic procedure in a multiplicity of diseased conditions. So many clinical phenomena were benefited by parathyroid therapy, that the appearance of a cure-all was produced, and due caution was called for and exercised in the conservative estimation of clinical observations. It was shown that all the different and variable conditions in which parathyroid proved of advantage were characterized by an upset of the calcium metabolism, and this point afforded a rational explanation for clinical observations.

Efforts were made to discover and isolate an active principle responsible for the parathyroid effects and, some years ago, Dr.

Adolph N. Hanson, of Faribault, Minn., published a suggestion that a certain acid extraction method had enabled him to procure a product from parathyroid tissue which is more active and therapeutically more useful than the ordinary extract. Some time after this, Prof. J. R. Collip, of Edmonton, Alberta, Canada, reported another though similar extraction method, and announced the perfection of a product that can be standardized by measuring its influence upon blood calcium. This particular product has received much publicity, not only in medical journals but also in newspapers. The possibility of standardizing it appeals to many physicians who look askance at organotherapy in general since they entertain the opinion insistently proclaimed by laboratory workers that, unless an endocrine extract contains an active principle that can be definitely separated and whose effects can be measured, it possesses little or no usefulness. This theoretical assertion is based upon mistaken premises, and medical practitioners have obtained incontrovertible effects from organic extracts in which an active principle has not been demonstrated or isolated.

It is unfortunate that there persists so sharp a contrast between theory and practice—between the ancillary sciences of the physiologist, biologist, etc., and the practice of medicine. Some of the controversial points have been discussed with great fairness and understanding by Dr. Alexis Carrel (*Cancer*, October, 1926, iv, p. 16, cf. *The Endocrine Survey*, December, 1926, iii, p. 463), which is the more to be welcomed because Dr. Carrel, an eminent research

worker, shows so just and sincere an understanding of the practitioner's problems.

It is quite true that the isolation of an active principle from an endocrine gland enables the physiologist to investigate the function of this particular active principle. Sometimes it makes it possible for him to answer certain questions that have been submitted by the practitioner of medicine and, thereby, to explain certain observations in sick people. I take it that this is one of the important duties of the physiologist, namely, to explain the reasons for occurrences in the sick.

The isolation of one active principle does not necessarily mean that this substance is responsible for the entire physiologic function of the related endocrine gland. It may well be that such a gland possesses several active principles which may influence physiologic processes in various ways. Evidence has been submitted, for instance, to the effect that thyroxin does not represent the full activity of the thyroid gland, but only one of its effects.

With regard to the parathyroids, we have not yet succeeded in the isolation of an actual active principle, but the extracts prepared by both Doctor Hanson and Professor Collip are definitely more potent than are the older ones obtained by other methods. A study of the papers on this subject, published during the last twelve or fifteen months, makes it clear that the impressions suggested years ago, regarding the influence of the parathyroids upon detoxication, are correct. This refers to substances in the nature of guanidin which have a special predilection for the nervous system and when in excess cause conditions like Parkinson's disease, tetany and similar neuromuscular manifestations. It has been shown that this influence upon the chemistry of the body evidently is associated with lime and its metabolism. As a result, careful study of the calcium metabolism has shown us, perhaps, how this detoxicating influence by the parathyroids is brought about, and, incidentally, has opened up the ways of perfecting and standardizing the substance in question.

Ulcers and Tetany

The clinical indications for parathyroid therapy remain as before; but they are being appreciated in a much more extended way, and, as more physicians become aware of these possibilities, our knowledge naturally increases. The influence that the para-

thyroid principle indubitably exerts upon the retention of the lime in the organism is an explanation for the remarkable effect which this treatment exerts upon ulcerative conditions generally. Parathyroid therapy is still being used as a remedy for chronic ulceration, not only on the surface of the body but upon the mucous membranes and sinuses. The clinical experiences of years gone by have now reached a stage of acceptance due to this increased knowledge. Clinical reports following the use of parathyroid in tetany show that, not merely are the clinical symptoms modified but, simultaneous with this change for the better, is an increase in the blood calcium figure which clearly is connected with this special healing faculty of the cells.

Some of the more interesting and striking results of parathyroid therapy were abstracted in *The Endocrine Survey* for August, 1926, pages 311 and 333; and in the same publication for September, 1926, page 337. The first of these reproduces a report made by Albert M. Snell, of the Mayo Clinic, concerning a case of tetany which was definitely proved to be due to a calciprivic condition. The patient was a woman, age 54, who came to the Mayo Clinic in July, 1921, with a large goiter of twenty years' duration and arthritis of five years' duration. There were signs of thyroid intoxication. This patient was operated on elsewhere and shortly afterwards experienced cramps in the hands and feet, and other symptoms showing a tetanoid condition. Massive doses of calcium lactate brought about improvement, but this was not sufficient to raise the blood calcium to normal. However, when parathyroid extract was administered, a rise in blood calcium followed which reached a normal figure when parathyroid and calcium therapy were combined.

Parathyroid and Calcium

The importance of supplying ample amounts of calcium during parathyroid therapy becomes particularly evident in studying an editorial in the *Journal of the American Medical Association*, also a communication by Professor Collip and a report by Greenwald and Gross, to which this editorial refers. The subject was discussed in *The Endocrine Survey* for July, 1926, from which I reproduce my discussion:

"A few months ago, an editorial writer in the *Journal of the American Medical Association* (January 30, 1926, lxxvii, p. 351) quoted Collip's expression of caution against the indiscriminate clinical adminis-

tration of the parathyroid hormone contained in the extract prepared by him. Collip declared (*Jour. Biol. Chem.*, March, 1925, lxi, p. 395) that the parathyroid hormone is a most potent therapeutic agent and that its use may be attended with great danger unless due precautions are taken to avoid an overdose and the development of hypercalcemia. Collip continues to say that only by careful clinical studies will the ultimate merits or demerits of this hormone be determined.

"The editorial in the *Journal of the American Medical Association* further refers to a report made by Greenwald and Gross (*Jour. Biol. Chem.*, November, 1925, lvi, p. 217), from which it appears that, in the tests on animals practically deprived of calcium in the food, the calcium content of the blood was nevertheless increased through the use of the parathyroid hormone.

"The authors conclude their discussion by saying: 'It should be clearly understood by those who attempt to use it that the hypercalcemia it induces is not due to improved assimilation but is the cause of an increased loss of calcium. It is not to be used to promote calcium assimilation, for only the contrary result is to be anticipated.'

"It is a question whether the danger is quite so great as Greenwald and Gross and various editorial writers would have us think. The fact that, in their animal experiments, the increased calcium content in the blood-plasma must have been derived from the bones, is easily explained, since they report specifically that the animals received virtually no lime in their food. Since the calcium-fixing property of the blood had been deliberately stimulated through administration of Parathyroid Extract (Collip), it stands to reason that the requirement for calcium, the greater affinity for calcium, so to speak, must have been satisfied by depriving some other tissues of their lime salts, which had a less intense affinity for them than the blood-serum.

"The trouble with these experiments is that they do not reproduce those conditions that we find in clinical experience. It hardly ever happens, and if it did happen it would be almost criminal, that patients who are in need of parathyroid feeding, or parathyroid stimulation, receive food that is entirely deprived of calcium. Any warning that is to be deduced from the experimental results of Greenwald and Gross is not properly directed against the cautious clinical employment of parathyroid extract, but it should rather be to the effect that care must be taken to supply that kind of food which is known to be rich in mineral content and, especially, in lime salts. It goes without saying that every provision should be made for those substances that the body needs constantly to produce the building stones required to make good all losses occurring during the physiologic processes.

"It is freely admitted that adequate care should be exercised in the administration of a potent parathyroid extract, such as that prepared by Collip. The same is true for all potent remedies and is taken for granted. One does not administer active principles in

the same doses as one prescribes infusions or decoctions. The general practitioner considers the need of caution to be self-evident."

One interesting observation was made by a Texas physician practicing in a Mexican border town, who saw a leprosy patient much benefited by parathyroid therapy. Recently the doctor informed me that the patient is virtually cured, although she is badly scarred.

Paget's Disease

A striking incidence of the benefits accruing to a calciprivic organism in osteitis deformans (Paget's disease) was reported by Dr. Anthony Bassler, of New York (*J. A. M. A.*, July 10, 1926, lxxvii, p. 96, cf. *The Endocrine Survey*, September, 1926, iii, pp. 337-339). This concerns a man of 66, whose illness had commenced in about 1917. At the time of the first consultation, November 6, 1923, "the roentgen-ray examination proved the typical bending of the long bones of the lower extremities, with more curving in the tibias and fibulas than in the femurs. The arm and forearm bones were not involved. All the bones of the lower extremities were much thickened, with apparent filling in of the medullary canals. The abdominal roentgenogram showed a moderately dilated stomach, ileac stasis, and colitis."

After various methods of treatment, here and abroad, the patient was put on parathyroid tablets, 1/10 gr. each, one after every meal, to be taken by mouth. That was on January 11, 1926. "Within one week he felt much stronger, seemed to walk better, and moved about with more assurance. His progress has been steady and, March 10, 1926, after taking the parathyroid for about eight weeks, he reported that he walked two miles and more each day and used a cane only when out. He had lost six pounds (2.7 Kg.). He felt much stronger and was perfectly well in every way. He also said: 'Before I took these tablets I was getting steadily worse, but it was so slow that I could not make comparisons from day to day or even from week to week, but month by month the contrast was noticeable. Since January, I have surely been feeling no worse as far as deformity is concerned; in fact, I feel it is less, although it is so bad it is hard to say. However, I feel much stronger and can get about remarkably well now.'

In commenting upon the improvement, Dr. Bassler remarks with great caution: "What the parathyroid did in bringing this

about, it is not possible for me to say. It is regrettable that an estimation of the blood calcium was not made before beginning with the tablets. But this much is definite, that in this case of steadily progressing Paget's disease no treatment was of any value up to the moment the parathyroid was started, and that within a short time after its use was established, a most marked change for the better occurred. While I am aware that in not a few cases of Paget's disease a cessation of the disorder may take place, in this instance I feel it is most logical and reasonable to believe that the improvement was due to the parathyroid extract."

Gastric Ulcer

The possibility of obtaining typical parathyroid effect by administering the remedy by mouth is proved further by certain observations reported in the *Medical Journal and Record* for May 5, 1926, page 570, (cf. *The Endocrine Survey*, June, 1926, iii, p. 225-226), by Drs. Ellice McDonald and Andrew Godfrey, of Philadelphia. In their treatment of gastric ulcer, these authors employed calcium lactate in large doses and parathyroid extract, by mouth, in 1/10 gr. doses three times daily. In addition to that they gave intramuscular injections of two units of Collip's parathyroid extract every second or third day. "Under this treatment," the authors state, "the patients gained in weight and improved in appearance. The occult blood in the stools disappeared in from four to six weeks, which was taken as an indication of healing of the ulceration. The treatment was also used as a preliminary to operation with a view of aiding healing of the wound and further in certain cases after gastroenterostomy where occult blood persisted in the stool for some time after operation. The occult blood in these postoperative cases has disappeared under this treatment. Good results have been obtained in several cases of acute hemorrhage from gastric or duodenal ulcer by injection into the vein of 0.5 Gm. of calcium chloride in 10 cc. of distilled water, along with Collip's parathyroid extract hypodermically.

"The results of this treatment have been so satisfactory in gastric ulcer that, in the authors' opinion, operation should be confined to those cases which show marked anatomic deviation and obstruction, or in cases where peritoneal hemorrhage is a factor. All other cases should have a trial of the calcium lactate and Collip's parathyroid."

The Depressor Principle in Hepatic Extract

The liver is not always included among the organs of internal secretion, but Dr. John J. Abel (*Bull. Johns Hopkins Hosp.*, xxxviii, pp. 1-32, Jan. 1926) declares that it is deservedly so classed, "if for no other reason than that the carbohydrates of our food are there stored as glycogen and held in readiness to be again mobilized and converted by a ferment back again to blood sugar to be used in the body as needed. In passing, let it be stated that the entire musculature of the body also constitutes a store-house for glycogen about equal in amount to that in the liver and, as has recently been shown, the manner of whose deposition and mobilization is analogous to that of the glycogen in the liver. The work of recent years with insulin, thyroxin and epinephrin proves to what a large extent the glycogenic function of this organ is under harmonic control. I leave out of consideration here the rôle of the liver in the production of other substances, such as those concerned in the clotting of blood. The external secretion of this all-important and largest among the glandular structures of the body is, of course, that complex fluid, the bile."

The glycogenic function of the liver is not the only one that arouses attention. In the course of the last year or so, particular interest has been attracted to the detoxicating function of this organ which evidently is under the control of its internal secretions and through which the toxic intermediary products of protein cleavage are built up into the relatively harmless urea. Incidentally, it has been shown by Dr. W. J. MacDonald, of St. Catharines, Ontario, that the arterial hypertension produced by those toxic proteins is depressed to safer limits by the hepatic internal secretion, and this can be accomplished therapeutically by means of hepatic extracts that have recently been produced in several laboratories in this country and have been studied with intense interest.

The hepatic extract containing a depressor principle is separated from the hepatic parenchyma by the use of various solvents, and the finished product is freed from practically all of the protein substances and protein cleavage products, like histamine, leaving behind an active endocrine principle which reduces the blood-pressure in experimental animals and has been used extensively

as a means of controlling functional high blood-pressure in human beings.

The various articles on the use of the several hepatic extracts, developed in the United States, Canada and Switzerland, are increasing the general appreciation of organotherapy by the medical profession and laying before those who are trying to develop new knowledge about these products many additional facts that heretofore have not been fully appreciated. For instance, the effects of hepatic extract upon the blood-pressure are limited by certain conditions not infrequently found in cases with hypertension. As a result, diagnostic information has been developed which enables us to differentiate varieties and types of hypertension in conjunction with our treatment of these cases. Still further, the impression is gaining ground that this extract constitutes the internal secretion of the liver and that its action is exerted upon the liver function and particularly upon that part which is concerned with the destruction of various poisons, some of which raise the blood-pressure. Studies are at present being carried out, with the blood chemistry and uranalyses, in patients to whom this depressor from the liver has been given, and it is becoming gradually clearer that, with benefit of a clinical character, there are changes of a chemical character which evidently are of service from the standpoint of the etiology of the difficulty, and advantageous from a diagnostic standpoint.

The development of a hepatic depressor remedy bids fair to be as outstanding an advance as the perfection of the other well-known and thoroughly accepted endocrine principles such as epinephrin, thyroxin or insulin.

Articles dealing with the depressor principle contained in hepatic extract were abstracted in *The Endocrine Survey* (May, 1926, iii, p. 198; Oct., 1926, pp. 397, 404; Nov., 1926, pp. 441, 443). It is important to remember that this depressor effect upon arterial hypertension should not be invoked in arteriosclerosis or in nephrosclerosis; in short, in any condition where a considerable degree of vascular sclerosis exists. In these cases, the hypertension has developed as a compensatory means and is necessary to force the blood through the tissues against the increased resistance.

In functional hypertension (hyperpiesis, or hyperpiesia, as it was designated by the late Prof. Clifford Allbutt), we may consider that the detoxicating function of the

liver has failed and that, consequently, the hypotensive principle of the hepatic internal secretion is no longer able to maintain a balance of the pressor effects produced by the internal secretions of the adrenal medulla and the posterior pituitary. It is possible that the existing intoxication has irritated the adrenal medulla to such a degree as to whip it up to increased functioning. In any case, the hormone pressor principles have prevailed over the chalone depressors and a state of hyperpiesis has resulted. If, now, the depressor internal secretion of the liver is strengthened (of course with the addition of suitable dietetic restrictions and effective elimination), a balance is once more established between pressors and depressors and the existing hypertension is reduced to safe limits. The effects of the treatment are permanent unless the old unfavorable conditions are reestablished. However, if the patient is permitted to become constipated or toxic; if he overeats or eats foolishly; if he overdoes in other ways to a harmful degree, the evil consequences will return as a matter of course.

Thyroxin

With regard to thyroxin, I wish to quote a brief communication by Dr. Edward C. Kendall ("Collected Papers of the Mayo Clinic and the Mayo Foundation," xvi, 1024, p. 418).

"The physiologic investigation of thyroid has established the fact that oxidations in the animal organisms are stimulated by an active principle which is contained in the thyroid gland. Although there are many effects observed after the administration of thyroid gland, the most striking, and probably the primary reaction, is the increased rate of combustion. The isolation of thyroxin in pure crystalline form permitted this study to be carried further, and it was shown that thyroxin alone increases the rate of combustion in the animal organisms. Furthermore, this increase is related quantitatively to the amount injected. One milligram given to an adult produces an increase of approximately 2.5 percent; the curve of response, when related to time, bears all the distinguishing features of an enzyme action. The substance acts in minute amounts for long periods, and produces such enormous increase in the output of carbon dioxide above the former level, that there is no escape from the conclusion that thyroxin acts as a catalyst."

The British Medical Journal (June 26, 1926, p. 1092) refers to an article by Dr. C. R. Harington (*Biochem. Jour.*, 1926, xx, pp. 293-311) according to which the author succeeded in greatly increasing the production of thyroxin from the fresh glands.

Whereas Kendall's first successful preparation of thyroxin yielded only 11 Grams from a ton of fresh glands, Harington has obtained 270 Grams from the same amount of material. With this far more profitable production, it became possible to study the chemistry of thyroxin more successfully, and Harington's investigations are of much interest in that direction.

"According to Boothby and Sandiford (*Physiol. Reviews*, 1924, iv, 69, through *Brit. Med. J.*, June 26, 1926, p. 1093), a relation has been shown to exist between the amount of thyroxin in the circulation and the increase in metabolic rate such that 1 mg. raises the basal metabolic rate 2.8 percent. In myxedema, the rate is some 40 percent below the normal, so that, if this is to be attributed to lack of thyroid secretion, 14 mg. of thyroxin should restore the patient to a normal metabolic rate, and this it does. Moreover, the study of the rate of decay of the action of thyroxin indicates that this is of an order suggesting a daily loss from the circulation of 0.4 mg. Consequently the daily injection of this amount should maintain a normal rate in the condition. This conclusion also has been entirely justified by experiment."

"In respect of hyperfunction of the thyroid, we need note only that the clinical picture of adenomatous goiter with hyperthyroidism may be produced by persistent overdosage with thyroxin. This is not so with exophthalmic goiter, again agreeing with the clinical differentiation of these two conditions. It is suggested that, in the latter condition, there is not only an increased secretion by the gland but also a defective synthesis, so that modified substances having special physiologic effects are thrown into the circulation. Remembering the success of Plummer in reducing the metabolic rate in cases of exophthalmic goiter by massive doses of iodine, we see a direct clinical interest in studies of the physiology of disiodothyroxin."

Insulin

Referring briefly to insulin, it is not necessary to enter into the remarkable and striking benefits that have been derived from the treatment with this product of the Langerhansian internal secretion in selected cases of diabetes. In the course of time, its place in the therapy of the disease has been defined, and it has been recognized that not every diabetic patient needs to be subjected to the treatment, which is not without discomfort and danger. Insulin has

its principal indications in those cases of diabetes, that are severe and rapidly progressive, in which acidosis, ketosis and uremia are present or threatening. In many extreme cases, the remedy has proved a veritable life-saver.

In milder forms of the disease, especially in those that can readily be controlled by careful diet and by a well-regulated life, the feeding of pancreas substance, either fresh or in desiccation, is usually sufficient to rearouse the endocrine function of the Langerhans' islands. As a matter of fact, this "homostimulative" effect of pancreas substance is preferable to the benefits derived from insulin, as it is more lasting. Insulin is clearly substitutive therapy. Its action is quantitative and is exhausted when the injected amount has been used up. If the hormone function of the patient's own pancreas has been restored, he is more likely to benefit lastingly and may even recover from his disease.

Insulin in Conditions Other Than Diabetes

One remarkable feature of insulin therapy is offered in the empirical employment of this substance in conditions other than diabetes. Reports to this effect have been mentioned in *The Endocrine Survey* (Mar., 1926, p. 85; May, 1926, p. 187; July, 1926, p. 267; Nov., 1926, p. 436). The first of these *Survey* articles is a collective review of the literature on the subject. It cites, for instance, two French physicians, Ambard and Schmid, according to whom insulin in nondiabetic patients brought about a prompt improvement in atonic wounds, in varicose ulcers, in slight or mild infectious skin lesions. Other authors report on the improvement observed in cases of furunculosis and eczema.

Dr. Thalhimier, of Milwaukee, aroused widespread interest by showing that the toxemic or pernicious vomiting of pregnancy could be arrested by the hypodermic administration of insulin together with intravenous injections of glucose. His observations were confirmed by Drs. Weill and Laudat.

Fisher and Snell, also Levy and Macheca reported on their good results with insulin in the treatment of postoperative shock and of shock due to excessive hemorrhage. Other authors found insulin of use in the treatment of Graves' disease; of tuberculosis coexisting with diabetes mellitus; of chronic deforming rheumatism; psoriasis; gangrene in arteriosclerotic diabetes.

An article by Dr. Luc Hertoghe, of Antwerp, may be of interest in various directions. According to an abstract of his original article (*The Survey*, March, 1926, iii, pp. 94-96) Hertoghe says, "it will be safest, in cases of diabetes that require insulin, to determine by various biologic tests, from the very beginning, the exact minimal daily dose or doses that are to be injected, in order to bring about the entire disappearance of glycosuria in the shortest possible time with a diet containing a maximum amount of carbohydrates, and without any danger of hypoglycemia."

Folliculin

It has been known for some years, as a result of the interesting researches of Drs. Allen and Doisy, in St. Louis, that an active principle could be secured from the follicular liquid in the graafian follicles of the ovary. Apparently, this is the principal factor in ovarian development and function, because in experiments with rabbits and rats the principal observable manifestation consists in a remarkable increase in the size, development and circulation of the entire sexual mechanism of the animal so treated. Our attention has been called to specimens dissected from animals that have received a number of doses of this principle, as compared with sister animals of the same litter, and the increases in size are astounding, reaching many times that of the control animal.

This active principle, known variously as folliculin or liquor folliculi, is now being used in an experimental clinical way; that is to say, the hope is being aroused that it will bring about trophic changes upon the sexual mechanism in cases of infantilism and maldevelopment of the uterus and adnexa, that previously have been resistant to the other current methods of treatment, including organotherapy.

Homostimulative Endocrine Therapy

I have referred to "homostimulative" endocrine therapy in contrast to "substitutive" therapy, and have made this distinction deliberately. Contrary to what has been claimed very often theoretically; namely, that the only form of feasible endocrine therapy was substitutive, clinical observation has shown that the administration of glandular desiccations (rather than the isolated active principles) produces a stimulation of the patient's own endocrine glands, and that, in this way, a lasting restoration of function may become possible.

I may quote from an editorial in *The Endocrine Survey* (Oct., 1926, iii, p. 379):

"If we postulate an exclusively substitutive effect of endocrine remedies, their action must be quantitative and the effects exhausted when the amount of glandular substance or of active principle introduced has been utilized. In such an event, treatment would have to be continued for the remainder of the patient's life; in other words, he would be tied to his medicine absolutely.

"As a matter of fact, there is sufficient evidence available to justify the assertion that substitutive endocrine effect is only one phase of glandular therapy. However much the idea of homostimulative action has been ridiculed and its possibility denied, the evidence is undoubted that this very effect is exerted. By homostimulative effect, we mean that the glandular substances introduced into the patient's body exert a stimulating action, first of all upon the related endocrine glands of the patient. To a certain degree, there is undoubtedly a substitutive action through which the patient's own endocrine gland or glands have an opportunity to rest because they are not called upon to deliver their own "home-made" secretions. Because of this rest and with the aid of the homologous stimulation, these glands can recover from their exhaustion and will in time take up their function once more.

"The acceptance of a homostimulative action further affords the only explanation for the observation that patients taking thyroid substance show symptoms of thyroid excess, after a time, unless the doses are gradually diminished. The reason is, we believe, that the patient's own thyroid again produces its hormone secretion and that this, added to the amount of thyroid substance given, proves more than the patient requires.

"Tom A. Williams (*Med. Rec.*, April 14, 1917, xci, p. 623) records the observation, made in patients receiving desiccated total adrenal gland substance, that 'after some months of improved health, the patient is able to dispense with adrenal feeding and yet remain in good health with blood-pressure augmented to normal.'

"It should always be kept in mind that endocrine therapy may become cumulative in its effects and that it must be watched cautiously. In the degree in which the patient's own endocrine glands become capable of functioning and of delivering their own secretions into the circulation, it will be possible, in fact, necessary, to reduce the dose of the related endocrine substance that is given artificially, in order to avoid an overdose. This is important, especially in the case of so potent a medication as thyroid feeding."

In Conclusion

There is no doubt that the further development of the endocrine remedies to which I have called attention has increased the value of organotherapy very decidedly. In

my correspondence, I have come in touch with many men whose attention apparently has just been brought to this method of treatment and who are almost for the first time in their experience investigating its possibilities. Many of these physicians have had the impression that organotherapy is a most unscientific phase of therapeutics; that it is affected only by quacks; and that the only form of organotherapy that has reached their notice (aside, of course, from the one or two well-known and accepted measures such as thyroid extract, to mention the oldest, and insulin, to mention one of the most recent) consists largely of administering glandular products of various descriptions for the correction of sexual incompetency. This is very far from the truth and,

it seems, is due to the remarkable excitement among certain classes of charlatans which developed as a result of the report of the justly famous Brown-Séquard when he announced the experiences that he and his associates had with extract of testes, thirty-five or forty years ago. However, Brown-Séquard himself emphasized the restoration of his mental powers and his working ability and insisted that his renewed sex vigor was only incidental.

The new developments with endocrine therapy have been and will continue to attract the attention of those who are studying the subject. More and more they are being considered, as intelligent and scientific physicians seek to develop new knowledge in a legitimate field.

Psychoanalysis—Fact and Fiction*

By MEYER SOLOMON, M.D., Chicago

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SO CALLED psychoanalysis includes so many different phases of life and its problems, and there is so much real truth and value mixed with serious error and harm in the writings of many of its foremost exponents and followers, that one can discuss or write on it, pro and con, practically *ad infinitum*.

In spite of this difficulty in handling my subject, it is nevertheless worth while to glance at the major issues involved.

After all, psychoanalysis is not merely a theory of so-called pure science, but it is being employed as a practical method to be applied to sick and well human beings, and its excursions into the fields of education, personality study and related activities are so numerous that it behooves us to understand its theories, possible applications and limitations, and to orient ourselves to the general principles and problems thus thrust upon us for consideration and rational solution.

Psychoanalysis, in fact, began as a practical problem concerned with the treatment of certain nervous and mental conditions, such as phobias, obsessions, hysteria and their ilk, the treatment being based on their supposed causes or sources of origin. It later broadened out, with many ramifica-

tions, so that it finally included within its purview all sorts of individual and social psychologic phenomena.

The Gist of the Theory of Psychoanalysis

The psychoanalytical theory of nocturnal dreams gives the basic central ideas for which the movement stands. This theory, very briefly put, will now be given.

The dream, as we know it from what Freud calls the "manifest content," can be understood, so the psychoanalysts say, only if we penetrate its outer disguise to its inner, hidden meaning or "latent content."

Dreams are the result of internal mental struggle or conflict. Certain intimate, personal, but socially unacceptable, forbidden or impossible wishes or cravings are struggling for expression. The direct, frank expression of these wishes is prevented by a repressing force called the endopsychic censor (or the censorship) and, as a consequence, they appear in disguised or symbolic, distorted and unrecognized form. The work of disguise is done in and by the so-called unconscious, or the region of the mind below awareness or consciousness. The unconscious uses various mental mechanisms or processes to accomplish its ends. These devices or mechanisms have been given different names, such as condensation, displacement, dramatization, and explanatory or secondary elaboration; and in

*Abstract of talk given before the Medical Round Table, of Chicago, July 13, 1925.

addition to this we find mention of mental mechanisms which are given such names as identification, sublimation, transference, introjection, projection, substitution, symbolization, conversion, rationalization and others. By clever manipulation and maneuvering, disguise of the hidden meaning of the dream is most artfully and exquisitely brought about. But the dreamer himself is not aware of the real meaning of the dream. The dream, according to psychoanalysts, is thus a solution, by compromise, of hidden, internal mental conflicts and wishes. Furthermore, all of this takes place without the dreamer himself knowing what is going on or even being aware of the conflict, the work being carried on silently and stealthily in and by the unconscious.

The motive force or driving energy behind the dream is the wish or craving. The ordinary adult type of dream is thus a concealed realization of repressed desires. The dream is the guardian angel of sleep, preventing awakening through the technic of disguising what would otherwise be the too frank expression of repressed thoughts.

The underlying wish is founded in the sex instinct according to Sigmund Freud, the founder of psychoanalysis, and in the "will to power" according to Alfred Adler, one of Freud's followers. In the case of the sex instinct, various perverse and forbidden tendencies, of supposedly infantile origin, are the dynamic forces at work.

Every single bit of a dream has a meaning, direct or indirect. When indirect, its meaning or purpose is cryptic and complex, with a long antecedent history responsible for its efforts at struggling for expression, even in distorted form. Thus there is no accident in dream life. All is purposive.

Dream Interpretation

To unravel the meaning of a dream, one must analyze the various elements in the dream and interpret them correctly. For this, a certain technic is required. This technic consists of the free association of ideas in a state of passive consciousness (or the uncritical association of ideas) and of timed associations in response to certain selected stimulus words. From the associations thus gathered together, the troublesome mental complexes are said to be discovered, are brought to the light of day and are recognized for what they are. The conflict is then said to be solved.

To properly analyze and interpret a dream one may have to dig far back into the past

life-history and memory, even to the early childhood and infancy of the individual; yes, even to the childhood of the race, as seen in myths, legends, folk-lore and the like. Comparative psychology, it is contended, is of direct aid in getting at the meaning of symbols or at the latent content of the dream. Thus the meaning of symbols has been arrived at, so the psychoanalysts claim, and they speak of the "language of dreams" and "the art of dream interpretation."

Even according to Freud, his theory of dreams, as given above, does not apply to all dreams. Dreams or portions of dreams of so-called infantile type, found in children and often in adults, are characterized by lack of disguise by the dream work, so that they express directly the wishes and mental complexes and conflicts of the dreamer. All other dreams, however, have a varying degree of transformation by distortion. Although admitting that events and experiences of the preceding day are practically invariably woven into the network of the dream, Freud insists that they are but inciters of and attached to the more deeply underlying, intimate and truly motivating experiences of the past.

Such is the gist of the theory, although much else may be added in the way of elaboration and completeness.

Freud and his followers apply their psychology not only to dreams but also to certain (functional) nervous and mental conditions, so-called psychopathologic acts of every-day life (such as slips of the tongue and pen and other apparently accidental happenings), character peculiarities or eccentricities, forgetting, and a multitude of other manifestations (in thought, feeling and action) of all sorts, in adulthood and childhood. In fact the whole gamut of human reactions has been scrutinized from this standpoint and analyzed and interpreted in the light of the views here very superficially condensed.

I must stress the fact that the object of psychoanalysis was and is primarily therapeutic, originally applicable to functional nervous and mental disorders. But its usefulness and applicability have broadened to include educational, cultural, individual and social behavior problems of all kinds. In the interim its theories have become a storm center for debate and discussion.

I cannot here do anything like justice, in the way of presentation, discussion and criticism, to the many theories and problems

involved. I shall merely touch a few of the high lights.

The Use of the Term "Psychoanalysis"

Such questions as the following are frequently asked: Do you believe in psychoanalysis? What is there to psychoanalysis? And one is supposed to answer in a word. The answer ordinarily requires a definition of the term "psychoanalysis", about which the question centers. The answer would thus depend upon what one means by that term.

To begin with, I may say at once that the term "psychoanalysis", if used in the sense that it etymologically should have; namely, analysis of the psyche or mind, synonymous with mental analysis, psychognosis, psychologic analysis or their substitutes, is very comprehensive, inclusive and useful. It would then be employed in the sense of character or personality study, by all means or methods. This unrestricted and scientific use of the term would be highly desirable. Unfortunately, however, the terms "psychoanalysis" and "psychanalysis" were originally used by Freud and his followers in a certain sense which even the modifications of Jung and Adler have not changed. For this reason it has come to have a specifically technical and restricted meaning which not only has gained currency among the lay public but also is accepted by the very followers of psychoanalysis.

Even granting that Freud had no right to read Jung and Adler out of the psychoanalytic movement (I had almost said "party", so fixed and narrow had its boundaries, platform and shibboleths become), and assuming that Jung, Adler and their followers are still psychoanalysts although not full-fledged nor one hundred percent *Freudian* psychoanalysts, I find that there is both fact and fiction in psychoanalysis, even as it stands today, in spite of the stormy and critical career it has had up to date.

Psychoanalysis, then, as the term is employed and as the procedure is practiced, is not unbiased mental analysis or personality study, by all methods, fair or foul, but is based on a certain psychologic conception of man and his makeup, which, as I shall point out, was and is faulty and one-sided, and in harmony with which the so-called analyses, which are frequently really interpretations, are made.

I am ardently in favor of personality or character study or mental analysis or psy-

choanalysis (when this term is used in the unrestricted and etymological meaning of the word), but I am not enthralled by single-track or distorted analyses or interpretations, reminding one of cubistic or post-impressionistic tendencies in art. The fact that the term "psychoanalysis" has been given this peculiar and limited connotation, of and by itself, shows that all is not well in this field.

Now, what are some of the basic facts and fictions in psychoanalysis?

Some Worthy Contributions of Psychoanalysis

Freud and his followers are responsible for certain definite contributions to psychology and personality study. I shall enumerate a few of these.

A more humanistic psychology.—The psychoanalysts have cut adrift from a purely laboratory and physiologic psychology and have entered upon a more humanistic and living psychology which deals with the man in the street or in the raw, much as the novelists, dramatists and others are wont to do. As a natural consequence they have become interested in man's yearnings, wishes and feelings; his cravings, aspirations and anticipations; his successes, failures and compromises; his instinctive make-up and mentality; his similarities to primitive man; and a host of other related phenomena.

Of course, all of these problems have been and are being attacked by many others (biologists, psychologists, anthropologists, sociologists, etc.) from many different angles, and their contributions have indeed often been very penetrating, well founded and most valuable, although none of them have made the extravagant claims of the psychoanalysts.

Psychoanalysis has, nevertheless, helped to increase popular interest in a more living psychology, and at the same time has brought to the attention of the public mind many scientific and debatable problems.

The sex problem.—The sexual instinct in particular has been dissected and analyzed, boldly and without kid gloves. This has helped to explain the sexual aberrations of man, although much valuable work in this direction had already been done. This instinct has, it is true, all too often been whispered about behind closed doors. The skeleton in the closet has been taken out into the middle of the room and vigorously rattled—but too much so for its own good

or for the good of others. Although tendencies in this direction were already on foot from many forces and sources at work in the sexual hygiene and social hygiene movements, nevertheless the psychoanalytic movement has helped considerably in sending things along in the right direction somewhat more rapidly.

The mental mechanisms.—I would class the mental mechanisms as among the most valuable and definite contributions of psychoanalysis, although, unfortunately, they have been overworked and misapplied and their names used in vain, often as rigid and structuralized mathematical formulae.

A large number of mental mechanisms have been indicated and stressed. Some of them are of decided aid. Just a few of the more important ones will be mentioned.

Conflict and repression.—The rôle of internal mental conflicts, centered about personal, individual, intimate wishes and problems, in their relation to nervous and mental health and equilibrium, has been forced home upon us all, with powerful hammerblows. The significance of repression or efforts at repression has been pointed out in various ways and clearly demonstrated. Although it is too true that this, like the other mental mechanisms, has been frequently unnecessarily invoked, misapplied and used as the magical explanation when, as a matter of fact, it played little or no part in the case, the relation of mental conflict and repression to mental dissociations and disorders has been properly emphasized. This is a very important and widely applicable contribution.

An understanding of the mechanism of projection or attributing to outside sources thoughts, feelings, and behavior arising from forces within the individual, is useful in explaining superstition, magic, faith cures, delusions and hallucinations of various sorts and allied states.

Rationalization, or self-justification, which is characterized by purposely or uncritically justifying our ideas or behavior for reasons other than those we give or believe, or satisfying our own wishes, habits and vanity—this is an interesting and common mental mechanism which needs emphasis.

Conversion, or the substitution of a mental difficulty by a physical or bodily difficulty, is common enough in the field of medicine.

The following mental mechanisms, made much of by the psychoanalysts, are also of value; *displacement*, or the deviation of emotion from its primary to some other,

secondary end, so that means to an end become ends in themselves; *sublimation*, or the direction of one's interest to higher and higher aims; *transference*, or the displacement of tender emotions upon individuals; *identification*, or identifying one's self with other personalities and imitating them, be they friends, teachers, parents or others; *substitution*, or the use of one object or idea as the symbol for another object or idea to express a given meaning or situation. A number of other mental mechanisms seem too artificial to be given much consideration. Sometimes names have been given to mental processes already known by other satisfactory terms.

The inferiority-superiority complex.—This is nothing more than the tendency to self-abasement or self-assertion in varying degrees, but its significance has been reemphasized by Adler. Ideas of inferiority may be responsible for feelings of incompetence and unworthiness, uncertainty and insecurity, excessive self-consciousness, over-suspiciousness, ideas of persecution and many other reactions. Ideas and feelings of superiority may lead to delusions of exaggerated self-esteem, self-expansion and grandeur, omniscience and omnipotence, even to the so-called Godman or Jehovah complex. The importance of compensation and overcompensation for defects, handicaps, lacks or needs in our equipment or opportunities or possibilities has received worthy thought.

The dangers of flight from reality have been thrown upon the screen. It means avoidance of disagreeable and painful tasks—seeking refuge in a world of unreality—and indicates the need of its replacement by well-directed efforts towards getting at close grips with the obstacles in our path, with morale, initiative, persistence and critical thinking. It forces home the need of avoidance of uncritical, undirected, purely wish-fulfilling phantasy, day-dreaming and castle-building.

The parent-child relationship has been discussed very fully but with harmful and fanciful misconstruction and misinterpretation, especially in a sexual setting. However, psychoanalysts have stressed the need for gradually weaning the child away from a too helpless and dependent attitude, as seen in the selfish, spoiled (and often only) child; for the careful and gradual release from infantile and childhood moorings; for respect for the opinions, views and personality of the growing child; for the need of encouragement, in the child, of initiative and independence; for guidance and instruc-

tion in sexual hygiene, etc. Although the present-day child-study movement is doing its utmost to disseminate the old, old truth that the making or breaking of the personalities and careers of the children are in the hands of the parents, an impetus to child study has been given from the sidelines by the psychoanalytic movement.

And last, and perhaps most important of all, the *mental hygiene movement* has found a powerful ally in psychoanalysis. The problems of psychology, psychopathology and psychiatry have been popularized among the thinking and reading public, even though with much unscientific mythological and loose thinking, leading to suggestibility and wild imaginings by the uncritical.

Some Criticisms of Psychoanalysis

I shall not take up for separate discussion such individual problems as dreams, nervous and mental conditions, the so-called psychopathologic acts of everyday life and the rest, because all of these are but the fruit on the branches of the tree whose trunk and roots are the general psychological conception or system from which they spring.

Just a few of the main faults and fictions will be mentioned in this connection.

Loose thinking.—Any critical reader who has taken a glance at the work of psychoanalysts must admit that in too much of it there is a definite looseness in reasoning and logic—a tendency to guess-work and cocksureness of the Sherlock Holmesian sort—this carelessness in thinking and expression leading to a feeling of omniscience and omnipotence in many. There is needed a liberal admixture of that very repression in the sense of critical control, guidance and direction, of which the psychoanalysts themselves speak so much. Mere offhand opinions and guesses are not sufficiently convincing, no matter how fascinating, plausible or interesting they seem.

Single-track thinking with proof by analogy has been repeatedly resorted to. For the more suggestible, this has led to a veritable mental epidemic. Too much has been taken for granted, and far-reaching over-generalizations of all sorts have been made. For example, disagreeable experiences are frequently said to be actively repressed into the so-called unconscious, when uncritical thinking, neglect or displacement by later experiences are the real explanation.

Lack of formulation and definition of terms.—This loose thinking is shown especially in their satisfaction with the terms employed, in spite of a lack of clear formulation and definition of many of their terms

and concepts, which have from the very beginning been vague. Even such commonly used terms as "endopsychic censor", "the unconscious", "wish" and "sex" have not been given a clear, unequivocal and specific definition and delimitation. This vague use of terms and concepts has, to be sure, been responsible for most of the complicating results.

Mental gymnastics.—In much of their thinking we see evidence of mental gymnastics or play, sometimes apparently for the mere joy or fun of it. This mental jugglery and legerdemain has had to be employed in great measure to fit fact to theory in the use of the fundamental principles of psychoanalysis.

Psychoanalytic romancing.—There is evident, in much of the work of psychoanalysts, the tendency to story telling, romancing and dramatization. They seem not infrequently to be captivated by playing with words and inventing a new jargon—a true love of wordology, one may say. Take the terms Electra and Oedipus complex, for instance. What should be metaphorical and figurative, always with an "as if" understood, is accepted and applied in the actual or literal sense, just as in the Biblical concepts held by so many. The terms "Narcism" and "Narcissism" are proudly used, just as if self-love and self-display were non-existent.

Psychic determinism.—They have been battling with the old problem of responsibility or irresponsibility; determinism or free will. Instead of confining the discussion to strictly cause-to-effect relationship and being satisfied with efficient causes, they have insisted upon attributing the phenomena of human behavior to intimate personal and racial purposive tendencies.

Teleological determinism.—They have refused to recognize chance or accident in mental life, and have insisted, in all cases, on substituting self-induced internal causes for efficient causes. Thus they have given a special significance to infantile amnesia or the forgetting of infantile and early childhood experiences, and to the failure to forever give new associations of ideas. As a consequence, their theory of the purposive nature of forgetting of any and every sort, even of the most remote mental and emotional experiences, is in line with the over-application of the idea of repression and conflict.

Physiologic and biologic processes, passive in nature, have been given a purposive meaning, active and even ideational. This

is seen in their contention that past experiences are not forgotten, erased or lost but continue to exist in active, organized form in the unconscious—not merely in some cases, but in all cases, and to the very last letter. This is quite different from the general conception of the conservation of matter and energy in physics, where there is no insistence on the particular form of matter persisting in all cases as such, let alone in active, organized form.

The world as will and idea.—The psychoanalysts have thus adopted a conception of the world as will, wish, craving and idea, applying it to physical and physiologic as well as to mental phenomena. This teleological determinism is thus based upon the conception of ideational, personified, individualistic purposes or meanings in phenomena which have no such significance. It is, in fact, an animistic, anthropomorphic concept, in this respect, and in so far as allied to superstitious, mythological thinking.

The unconscious.—This is most clearly demonstrated in their conception of the unconscious. They have endowed the unconscious with superhuman powers of omniscience and omnipotence. In truth their unconscious has been endowed with such mysterious powers that it has greater capacities for thinking and cleverness than the most acute and critical conscious states of mind. It is small wonder that the lay writers on psychoanalysis practically tell you to let your unconscious do your work for you. This assignment to physiologic impressions or memories of self-conscious capacities and thinking powers is in line with the old idea of demoniac possession.

Pansexuality.—Originally the psychoanalysts gave a sexual interpretation or significance to all human behavior, adult, infantile and even prenatal. This psychosexuality or pansexuality was centered about the application of psychopathic sexuality found occasionally in adults, which had been fully described by others, and applied to all human behavior, including the most innocent and playful infantile activity; so that all pleasure, rhythmic motion, and in fact the energy of the universe were given a sexual setting. Likewise all human ties and bonds, within and without the family, were given this meaning.

Adler has replaced the Freudian sexual interpretation by one based on the "will to power" which he sees behind all human behavior; while Jung uses the term "libido" not in a sexual sense but for psychic energy in general. But, like Freud, Adler has

gone to extremes, overuses this valuable viewpoint, and employs many other questionable concepts of psychoanalysis to support his views.

Inheritance of thoughts.—Although the problem of the inheritance of acquired traits is still a battleground in biology, even for the simplest physical traits, the psychoanalysts have gone ahead and accepted as true the inheritance of acquired thoughts and symbols. The biologic theory of recapitulation (namely, that ontogeny, or the development of the individual, tends to recapitulate the main phases of phylogeny, or the evolution of the species) has thus been overworked and overapplied—without foundation or proof.

Metaphysics.—A metaphysical tendency has been permitted to enter. That this is true can be seen at once by the fact that Freud is now writing on metapsychology, which is but a natural consequence of all that came before.

Neglect of work of others.—The chief of the errors of psychoanalytic thinking is to be found in the failure to give due consideration to the contemporaneous and preceding work in biology, sociology, psychology and allied fields. This neglect of the work of others and of biologic background has been responsible for building up a one-sided psychology instead of a true and living psychology based on the instinctive makeup of man as he is. This defect is now being appreciated by many, so that a common sense psychology is more nearly approached.

The Solution and the Future

The psychoanalytic movement has done much indeed to help us become interested in the anatomy and dissection, surgery and repair of the structure of the mind, comparable to that of the body. The sincerity and industry of its foremost exponents should receive only the highest praise. The gap between psychoanalysis and psychology must be bridged. The contributions of psychoanalysis should be acknowledged, accepted, modified where necessary and applied properly. Its impetus to the study of personality should be appreciated.

Orthodox psychology, the sexual and social hygiene movements, the child study and mental hygiene movements and many others, owe a debt to psychoanalysis for certain gifts and benefits, direct and indirect.

Let the psychoanalysts admit their extremisms and overgeneralizations—and cease indulgence in them.

The lay public should look for help to the

scientific workers for the solution of theoretical, debatable and still unsolved fundamental questions. They should avoid undue suggestibility or gullibility with consequent acceptance, *en masse*, of theories plausible and interesting but not wholly digested, proved or accepted by the scientific and reliable workers or minds in their respective fields. The names of psychoanalysis and psychology are being used in vain by too many.

True personality study is to one-sided psychoanalysis what chemistry is to alchemy and astronomy to astrology. Personality study, whether called mental analysis, psychologic analysis, analytical psychology, psychoanalysis, characterology or what not, should be based on a common sense, humanistic psychology of the average human being as he actually is. Wild, unrestrained thinking should be replaced by more cautious and directed thinking.

We should avoid extremism, faddism, hobbyism and cultism in this important work. Cubism and futurism have no place in science, especially when it is practical and applied to human behavior. The lure of the odd, strange, phantastic, and unusual should be guarded against.

There is no single panacea for human ills. There is no royal road to mental health. We should not here seek the magical or the miraculous. This means the careful, scientific, broad-minded individual study of each

case. Individualization must be the keynote. The object should be practical results and not merely fascinating and entertaining theorizing. The acid test is to be found in the crucible of experience, backed by critical thinking.

In our personality studies let us give consideration to all instincts and not resort to artificial attempts to reduce all phenomena to a common denominator which may be but theoretical, speculative, academic, impractical, and even harmful if accepted literally instead of figuratively.

Mental analysis, personality study and the mental hygiene movement have come to stay. With friendly cooperation there will be a gradual clarification of the issues now sources of contention, harmonization between conflicting groups will result, and the work will go forward by leaps and bounds.

In spite of mistakes and exaggerations, we owe a debt of gratitude to all those who have helped to further this work—and among these the psychoanalysts deserve a very high place of honor. To the genius and leaping, although too oft, uncritical imagination of Sigmund Freud, we owe much. But far from having set; with psychoanalysis, the sun of a true, living psychology has just begun to show itself upon the horizon. May it rise higher and higher and shed its light more and more clearly in the coming years.

Progress in the Science of Ventilation

By P. E. FANSLER, New York City

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THE medical profession of America may soon be invited to participate in the solution of a national problem of great and growing importance. We are passing through a period of unprecedented prosperity, as a natural result of which money is being lavished upon the building of schools for our children. Units costing in excess of a million dollars are common, even outside of the largest centers of population, and these buildings are being constructed, furnished and equipped in a manner that leaves no doubt of our intention to provide our children with the best obtainable. This is as it should be, and no reasonable expenditures will be objected to that are properly utilized for this purpose.

This evolution in educational plants from

the little red schoolhouse has come about largely within the last fifty years and it is only natural that the design, construction, and equipment of school buildings, vastly different from those of a decade or so ago, have imposed upon architects and engineers of school buildings many problems not inherent in the one-room school.

Unquestionably the most important consideration is the comfort and the health of the children who spend so large a part of their time in the school buildings.

There are three prime essentials in this respect: proper lighting, optimum atmospheric conditions and high-class sanitation. It is of interest to note that while the light of the sun suffices for the requirements of the day school in any part of the

United States during the entire school year, the climatic conditions vary within such wide limits that the larger number of our schools must have their atmospheric conditions produced and maintained by other than natural and uncontrollable means.

Now it is curious that, while the health of our children *should* be a matter of direct concern to the medical profession, probably more than to any other group of men, outside of the purely teaching group, very little appears to have been done by those engaged in the practice of medicine in any of its forms or in closely allied professions to bring about a solution of the problem that must be solved before schools can be built to provide optimum atmospheric conditions for their occupants.

This problem is a tremendously involved one. There are two basic elements: (a) what defines the optimum atmospheric conditions that should be maintained in a schoolroom; and (b) how can these conditions be most effectively and economically maintained.

Curiously enough, it has been the engineering and not the medical profession that has furnished most of the scientific information upon which our present-day practice in air conditioning is based.

In a recent search through one of the largest medical libraries in New York City, furnished with the most complete index system possible, little or no evidence could be secured showing that the medical or allied professions had, either singly or through group organizations or associations, developed any scientific standards of optimum atmospheric condition for either comfort or health. So it has been left to another group of professional men, those engaged in the artificial production of atmospheric conditions, to evolve this data.

This procedure would not appear to be logical for, surely, no group of men should be better qualified to define the atmospheric conditions under which the greatest health or comfort may be secured than those ministering to the physical welfare of man. It would seem logical procedure for *the medical man to define the condition desired and for the engineer to produce*, if he is able, the desired results.

That the medical world has not delved into this question is probably due, more than anything else, to lack of proper co-ordination between these two groups in the past, and to the very gradual growth of understanding, on the part of the engineer, of the factors entering into this problem.

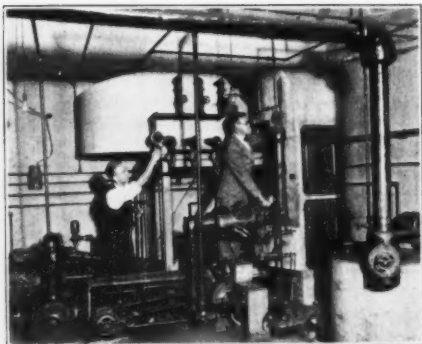
The engineering group has quietly gone ahead, and, organized as the American Society of Heating and Ventilating Engineers, in cooperation with the U. S. Bureau of Mines and the U. S. Public Health Service, has affected a scientific determination of the factors that go to make up an ideal atmosphere. The fruits of the five years of research are probably unknown to the medical world at large.

It is becoming more and more evident that, before a final solution of this problem can be made, there must be a joint, carefully balanced and exhaustive study made of the question by the man of medicine, the public health worker, the climatologist, and others whose spheres of activity might make them competent to join in such a movement. There is already a close tie-up between the medical profession and the school-control group, as is evidenced by the fact that few school boards fail to include one or more physicians.

There is one phase of the subject upon which no light of value has been shed, either by the medical or other fraternity. That is the result of maintaining ideal climatological conditions in the schoolroom, where the child spends about six hours a day, when the same child may spend his sleeping period of eight to ten hours in a room, perhaps tightly closed, or, at best, poorly ventilated, and perhaps three or four hours in a stuffy home. This is a matter that must come up when the school ventilation problem is settled, and it is to the physician that the world will look for information.

It is clear to any one who can look back over the last thirty or forty years of school building development that the transition from the one-room school to the present-day institution has been step-by-step, gradual and logical. The heating and ventilating of schools have followed along almost exactly parallel lines, to meet the requirements as they successively became more exacting. Much of the early work was the result of the "cut and try" method and for many years the primary idea in schoolroom air conditioning contemplated only the removal of the air from the room at such a rate that the concentration of carbon dioxide did not become greater than six parts in ten thousand, this being nearly double the amount contained in normal outdoor air.

Within the last few years the desirability of centralizing school properties has resulted in the building of enormous edu-



Manually controlling the air conditioning equipment for producing any desired climatic condition in the psychrometric rooms in the Research Laboratory of the American Society of Heating and Ventilating Engineers at the U. S. Bureau of Mines, Pittsburgh. Any constant condition can be maintained automatically if desired. This equipment consists of a combined humidifier-dehumidifier, and air washer; heater and cooling machine.

cational plants capable of accommodating from 1,000 to 1,500 students. It goes without saying that the heating and ventilating problems of such a building are multiplied in the ratio of 200 or 300 to 1 over those of the schoolhouse of the not distant past.

It seems remarkable that the medical authorities throughout the country, and those in recent years who have been devoting their lives to studying public health, did not of their own accord take up the problem of determining just what defines the best atmospheric conditions with which to surround the school child. But the fact remains that very little was done in this direction until, largely through the initiative and interest of a private citizen of New York, a commission was organized to secure data in the New York City schools upon which a logical finding might be based. The funds covering this investigation were supplied by this same public spirited citizen.

In view of the many widespread and authoritative quotations from the report of this so-called New York State Commission on Ventilation, it is of interest to note that the commission has no official or legal connection whatsoever with the State of New York. The appointments to membership on the committee were made by Gov. Sulzer as an ex-officio act of courtesy, but there is no reason why the authoritativeness of the findings should be magnified by the intimation that the commission or its report were official activities of the State of New York.

A tremendous quantity of data was col-

lected, bearing on one phase or another of the conditions found in regard to heating and ventilating in some of the New York City schools, as well as statistical data bearing on the health of the children attending school. The commission experimented for a number of years with various types of ventilating systems and the results were published in a ponderous volume whose contents are incomprehensible to one who has little time to spend in untangling the strands of a complete report. The report of the commission, in brief, was not entirely unanimous, nor was it conclusive, although it represented the earnest work of a group of devoted men with every reasonable resource at their disposal.

The following is a brief extract from the lengthy conclusions of the commission:

"In final summary, we may conclude that either window ventilation or plenum fan ventilation—if the plant be properly designed and operated—yields generally satisfactory results from the standpoint of the air conditions in the average schoolroom."

An attempt has been made by those interested in the possibility of securing proper atmospheric conditions in schools without the use of automatically controlled mechanical equipment to translate the findings of



Subject performing a measured amount of work in test room.



Making an automatic and permanent record of the rate of respiration. In actual test the subject is in the test chamber and connected with the instrument by means of a long rubber tube passing through the partition.

the commissions as favoring what has erroneously been called "window ventilation". This plan, which is in reality little more than a reversion to the methods used fifty years ago, contemplates the following essential points:

1.—Under the lower sash there is to be inserted a *deflector* providing for a horizontal entry of air and a vertical discharge, induced by a series of parallel curved plates.

2.—Beneath this deflector there must be a *radiator* extending the full width of the deflector for the purpose of heating the air discharged from this deflector.

3.—On the wall opposite the windows, *exhaust* ducts with a total cross-section area of 8 sq. ft. for a schoolroom of standard size must be provided.

4.—Instead of the usual allowance of 192 cu. ft. of space for each pupil, this method calls for from 250 to 310 cu. ft. for each pupil according to age, the larger space being required for the older pupils.

5.—The temperature of the room is to be kept at 67° F.

6.—An *eastern exposure* of windows is unsatisfactory as it does not give the full advantage of prevailing winds.

But even if all these conditions are met, the commission hesitates to give it unqualified approval as it specifically states: "There will be many schools in which this method cannot be applied. Where noise, dirt, and odors from the street make it inconvenient to have the windows open, the use of the plenum system would, for instance, be clearly indicated, and where classrooms are markedly over-crowded, window ventilation would prove inadequate."

It must be evident to even the casual reader that an attempt to provide proper

air for our children in their schools merely through the grace of a Divine Providence, and by the constant changing of the window openings by the teachers, to meet the changing of atmospheric conditions outdoors, cannot be uniformly satisfactory, because it violates one of the fundamentals upon which all scientific and engineering progress has been based. *It lacks the essential element of control.* Furthermore, it makes no provision, nor can it make, for factors that will later be shown to be of almost equal importance to the question of temperature. These are: the proper humidifying of the air; the elimination of dirt, dust and odors from the air in cities and other localities where buildings are close together and the outside air is notoriously dirty; and the provision for air movement.

Now the "open window" plan contemplates that a large thermometer with an easily-read fluid be suspended in the class room so that the teacher, keeping her eye and her subconscious mind on the thermometer would, as the temperature of the room increased or decreased, raise or lower the window to admit more or less air. As the average class room contains six to eight windows, it is evident that an appreciable part of the teacher's time and mind are going to be occupied by these matters so extraneous to teaching. Furthermore, it may so happen, when the teacher opens the windows for the admission of more air, that the Divine Providence has willed the air to blow upon the opposite side of the building. It is difficult to understand how air could be expected to enter the room under such conditions.

The following opinion, taken from a paper prepared by H. W. Schmidt, Supervisor of Buildings, Department of Education, State of Wisconsin, for the *Wisconsin Journal of Education*, may be taken as typical of the viewpoint of executives with large experience in such matters:

"The following items must be borne in mind when discussing or advocating 'window ventilation.' It is true that with this system air ducts to convey fresh heated air to the rooms are not needed. Contrariwise, vent ducts, from 125 to 150 percent greater in area than those required for a fan system, are necessary. Again, the system requires rooms from 30 to 60 percent greater in cubic content to get results secured with a blower system. This also results in the installation of direct radiation in each room very much in excess of that required for heating a standard size schoolroom. This in turn requires much



Subjects in test to determine physiologic reactions of human beings to various combinations of temperature, humidity, and air movement.

These men remain in the test chamber for three hours, or less, if the condition is too severe, during which time frequent observations are made of the rectal temperature by means of electrical thermocouples, observation being made by observer in an adjoining room, without the knowledge of the subject. Pulse rate, blood pressure, rate of respiration, quantity and analysis of expired breath and loss of weight due to perspiration are also taken.

larger steam piping and returns. Eastern room exposure is taboo! The best lighted and most cheerful rooms are passé.

"The cost of a building, constructed on the assumption previously made, is very much greater. A twelve-room grade building, carefully laid out according to the conditions laid down in the report, had a content of 391,800 cu. ft., as compared with another building of the same capacity laid out along present standard lines with a content of 293,720 cu. ft.—an increased cost of construction around \$28,000. But one saves nearly \$3,000 on the cost of heat flues and a blower in order to get a system whose working is dependent upon a much harassed teacher and a kindly Providence!"

As a matter of fact the operating engineer of one of the newest and finest high-schools in the United States, using a modified window system of ventilation, is positive in his statements that such a plan will not function, as a general thing. Mention is made of this uncontrolled ventilation because would-be reformers spring up from time to time and announce that such a system will relieve the country of a tremendous burden of heating and ventilating machinery, both expensive to install and to keep in operation.

As Dr. J. E. Rush so aptly puts it; "This so-called open window ventilation will, as admitted by its advocates, work satisfactorily under special sets of conditions only as the position of the room according to the point of the compass and the direction of the wind and the outside temperature and the like seriously affect this operation. If we could control the outside air with respect to humidity, temperature and cleanliness and all that which we desire in the room

there would probably be little difficulty in the operation of such a system. But this would be merely shifting to the control of the atmosphere outside of the building in an attempt to produce ideal conditions for this new type of ventilating system".

As a contrast to the admittedly unscientific methods employed by the New York State Commission in their investigation, it is interesting to sketch over a monumental piece of research work that has been conducted during the past four or five years by the American Society of Heating and Ventilating Engineers in the Society's Research Laboratory located at the U. S. Bureau of Mines Experiment Station in Pittsburgh. This laboratory was conceived and brought into existence by the council of the society, in order that basic scientific studies of vital interest to the industry might therein be carried out.

One of the most comprehensive of the many problems attacked had to do with the determination of atmospheric conditions of greatest comfort to men.

For the purpose of these tests, rooms were constructed in the research laboratory so designed and arranged that the atmospheric condition within them could be accurately controlled in regard to all of its elements. The walls and ceilings of the rooms were heavily insulated and arrangements were



Recording rectal temperatures by means of precision potentiometers, without the knowledge of the subject. This instrument is connected to a thermocouple in the rectal tube by wires passing through the wall of the test chamber.

made to supply them with air at any desired temperature, degree of humidity or air movement. Needless to say, but one variable was changed at a time, the others being held constant.

Men who had volunteered for this experimental work were placed one by one in the rooms and arrangements were made so that variations in blood pressure, bodily temperature and other physiologic reactions could be observed and recorded by persons *outside of the room*.

In some instances the subject was at rest and in some cases work was done at a measured rate so that the reactions were obtained under varying conditions of bodily activity. Needless to say these tests required a great deal of time for their consummation but the results obtained amply justify the efforts, as they form the foundation of much of the practical work that is done in air conditioning today.

It is evident from this comprehensive research that the condition of optimum comfort involves the maintenance within prescribed limits of three elements; temperature, humidity and air movement. To these is axiomatically added a fourth consideration; that the air be reasonably free from bacteria and floating dirt and dust.

It is of vital importance that those directly concerned with the comfort and health of children in school realize that *the tempera-*

ture factor is not the only one to be considered. The temperature in the room may be as much as eight degrees below that commonly designated as comfortable, yet by bringing the humidity and air motion within certain defined limits, comfort will result substantially equal to that obtaining under higher temperatures with different degrees of humidity and air movement. Definitely and graphically to coordinate these factors seems difficult but it has been accomplished and the result has been termed the "comfort chart." This chart shows the existence of what has been designated the "comfort zone", between the extremes of which is a line called the line of maximum comfort, or the comfort line.

This then is the contribution of the engineering fraternity to the science of producing and maintaining atmospheric conditions of greatest comfort. Perhaps there are other factors yet to be determined and having equal or secondary influence upon the comfort of the child. Perhaps these tests, made largely upon young men, do not exactly fit the case of the school child. Perhaps the leaders of the medical fraternity will come forward with supplementary data, or with suggestions for more accurately or comprehensively defining the atmospheric factors controlling comfort and health. Such cooperation will be gladly welcomed by the engineers.

Two Kinds of Doctors

THERE are two classes of physicians; the generalists and the peripheralists. The former comprise the internists and the neurologists, and the latter the followers of all the other specialties.

The generalists, as a rule, see a MAN who is ill; the peripheralists see the condition from which the patient is suffering more clearly than they see the patient himself.

—Dr. Ludwig Braemer.

Surgical Seminar

Conducted by GUSTAVUS M. BLECH, M.D.

[Note: The Seminar is devoted entirely to the practical interests of surgeons. Problems and their discussions are solicited. Contributors must give their names, but whenever desired these will not be published. Questions for this department should not exceed fifty words. Address all communications for the Seminar to Dr. G. M. Blech, 108 North State Street, Chicago.]

Surgical Diagnostics (Continued)

For the sake of completeness let me remind the reader that *crepitation* is felt not only in fractures but whenever cartilaginous parts rub together. We feel crepitation in separation of the epiphysis and we feel or even "hear" it in arthritis deformans; for pathologic reasons too well known to need mention here.

But palpation can do more for us than pointing to the presence of lesions and deformities, for it can serve also as a thermometer for the determination of local differences in temperature. We use it not only in infections of the skin and of the subcutaneous tissues, but also in inflammations of the blood- and lymphvessels (phlebitis, lymphangitis), of the bones, tendons and bursae. Whenever possible, comparison with the corresponding normal structure or structures on the opposite side of the body or at a distance from the site of infection will leave no doubt as regards the reality of a local rise in temperature. Occasionally one can feel local elevation of temperature even in chronic infections, when the presence of pus must be suspected.

This leads us to a brief consideration of the use of the thermometer in general surgical infections. This little appliance often helps us to determine not only the gravity of an infection but its character as well.

We know that a general rise in body temperature is due to the resorption of bacterial poisons, and we know that the body reacts differently to different toxins. Thus we know that in staphylo- and streptococcal infections the rise in temperature is more or less continuous; while in putrid infections the fever is intermittent and accompanied by chills.

To obtain a suitable chart, repeated measurements must be made for a short period, but reliable charts can be obtained only if assistants and nursing personnel have been

instructed to practice thermometry by rectum only. Temperature readings from the thermometer placed in the axilla are unreliable and those obtained from the thermometer held by the patient under his tongue are also inexact for our purposes.

Both palpation and thermometry—the former locally, the latter generally—under certain circumstances show a lowering of temperature. We observe this in connection with severe injuries to the extremities as well as in thrombosis and embolism of the peripheral bloodvessels. As a matter of fact any interference with the local circulation will be characterized by a drop of the local temperature. Who has not seen a "cold" extremity after the application of too tight a bandage or plaster-of-Paris cast?

General fall of body temperature—always to be determined by rectal thermometry—is observed in all conditions of shock and collapse, no matter to what conditions they may be due. In suppurative peritonitis the thermometer warns us that the end is near, when it registers a subnormal temperature.

To return to palpation. We often hear the expression that a patient is sensitive to pressure on palpation at an affected site. Here we confront a phenomenon which is not so reliable as palpation for a lesion or temperature change, for the personality of the patient plays an important rôle and the examining surgeon must be more than a surgeon—he must be, above all, a generally experienced physician and psychiatrist, who can recognize the fact that one has to deal, on occasions, with malingerers or hysterics. On the other hand even well-meaning and otherwise normal patients often register pain differently, some being able to endure a good deal and minimizing their experiences; while others are inclined to make "mountains out of mole hills". Accordingly some patients complain of severe painfulness on palpation when we know from experience that the particular lesion is not at all so painful as the patient would have us believe; while on the other hand some patients will merely betray sensitiveness through a twitching of the facial muscles and deny that the palpating finger or hand produces sensitiveness, when we know that the lesion for which we examine is usually very painful to pressure.

As these varying manifestations may lead to diagnostic errors the surgeon must be on his guard. We had here in Chicago some years ago a near-scandal in which I happened to be a fortunate participant.

A young woman called upon me, stated that she had a chronically inflamed appendix and that she desired the offending viscus removed. Asked on what she based her diagnosis, she complained of repeated attacks of pain in the right lower quadrant of the abdomen and stated the fact that several physicians in her vicinity had pronounced her case to be chronic appendicitis.

There was nothing in this patient's facial expression to indicate anything unusual. She appeared to be normal from every point of view and a refined, earnest individual coming to a surgeon for help. After she was placed on the examining table for examination we noted that the tongue was moist and clear, the pulse and respiration normal. Before examination of the abdomen, rectal thermometry showed absolutely normal conditions. Imagine my surprise when on the least pressure with the palpating fingers over the ileo-cecal region the patient complained of severe pain and sensitiveness. The pressure had not been deep enough to go beyond compressing the skin towards the fascia. But the most careful inspection failed to show anything abnormal in the skin, nor was there any elevation of local temperature. I became suspicious and examined the ileo-cecal region again and again after having palpated the abdomen from the opposite side towards the right, but every time I touched the appendiceal region the patient complained of sensitiveness.

I noticed that she watched my hands closely so I managed to engage her in conversation, fired all sorts of questions at her, and while thus diverting her attention managed to press deeply over the appendiceal region without eliciting a complaint. I immediately requested the patient to dress and left the examining room. When she came to my desk I asked her point blank what her game was. To make a long story short, this young woman was in possession of a list of surgeons who had "fallen" for her pretense and had expressed a willingness to operate on her. I do not think she had any evil intentions, but I interpreted her mental make-up to require some sort of treatment and I referred her to an experienced neurologist, who confirmed my suspicion of the presence of hysteria.

The above case contains a lesson which we encounter in practice quite often in one form or another.

Of course, in surgical infections, the degree of sensitiveness to pressure is an excellent guide to the virulence of the bacteria and to the possible presence of pus.

Often a mere drop of pus can be located if we succeed in identifying the most sensitive spot of the sensitive area. This spot may be so small that the palpating finger is too clumsy an instrument for its determination. In examining a felon, for example, it is excellent practice to replace the finger by a blunt pointed probe. Establish the most sensitive spot and you have the site for incision.

Rhinologists attach much importance to sensitiveness to pressure in their attempts to determine the presence of empyema in the frontal sinuses and in the antrum of Highmore.

We determine osteomyelitic abscesses by sensitiveness to pressure, though it is good practice to examine the affected bone by tapping with the bent index finger. I, personally, prefer the ordinary rubber tipped plexor—not the percussion hammer used by neurologists.

We have in palpation an almost infallible means of determining even an incomplete fracture of a rib or ribs by merely gliding the examining finger along the rib. When one reaches the site of the fracture, even when the fracture is not sufficient to cause a palpable deformity, the patient will complain of pain. I can safely say that in a comparatively large number of rib fractures the diagnosis has been confirmed by the x-rays, and where an anterior view did not show fracture a side to side picture would reveal the truth. I confess that occasionally a mere osteitis or periostitis due to trauma may simulate an incomplete rib fracture, but even if the diagnosis be incorrect the treatment applied for fracture will be rational.

All that has been said with reference to rib fracture applies also to all long bones of the body. I for one prefer palpation, plus tapping, to manipulating the extremities for the purpose of establishing false mobility. Even in luxations and dislocations of joints, palpation will reveal as much if not more than the generally applied manipulations of flexion, ab- and adduction for the purpose of establishing abnormal mobility.

Finally, palpation aids us in differentiating between genuine and false pulsation of

tumors. Palpation will differentiate between the genuine pulsation of all sorts of aneurysmal conditions and the false pulsation of vascular tumors, such as goiter or sarcomata.

In the examination of pulsating growths and deformities of all kinds care must be taken to exclude transmitted pulsation from neighboring large blood-vessels, especially the carotids.

The diagnosis of an abdominal aneurysm when one feels only the abdominal aorta in a thin person is, unfortunately, not monopolized by junior medical students, as I myself have had occasion to learn on at least two occasions.

(To be continued)

Discussion of Surgical Problem No. 10 (1926)

Recapitulation of the Problem. (See November, 1926, issue, p. 805.) A man, aged 65, without any previous symptoms, was unable to void urine. A physician failed to introduce a catheter, but by other palliative measures obtained a small amount of urine. Continued medical attention since that time produced no perceptible relief.

On examination by the author of the problem the patient tells him that he voids an unknown quantity of urine involuntarily, so that he wets his clothing in the day time and the bedding at night.

An attempt to introduce a soft rubber catheter into the bladder is unsuccessful. The patient's general condition is normal and the only thing noteworthy is a large tumor of the lower abdomen, resembling that of a pregnant uterus. Dr. R. was not allowed to do anything else. He was unable to obtain any other data except possibly that the first physician had diagnosed a tumor.

The requirement calls for a free discussion of the possible diagnosis and treatment under the circumstances as given.

Discussion by General George Acheson, St. Martins, N. B., Can.

The symptoms detailed in this case of Dr. Robertson's seem to me fairly descriptive of the not uncommon condition of retention of urine, due, in all probability, to an enlarged prostate.

A man of 60 or over, who hitherto has not noticed anything wrong with his urinary function, suddenly finds himself unable to empty his bladder, or is able to void only a few drops, slowly. The more he strains the more tightly is the flow shut off. Examination now will usually reveal a smooth,

rounded tumor above the pubes, dull on percussion, and semi-elastic on palpation. After ineffectual attempts to pass a catheter, there is more or less constant dribbling of urine, over which the patient has no control. This is the overflow from a distended bladder.

The treatment indicated in such a case is evacuation of the bladder by expert catheterization with a proper instrument, or, failing this, by suprapubic aspiration. This should be followed by drainage and antiseptic lavage for a few days, and then prostatectomy.

Treatment other than surgical is practically useless.

Note: In a personal note to the editor, General Acheson alludes to the fact that Dr. Robertson has not submitted this case because of any difficulty in making the proper diagnosis or prescribing the proper treatment; and adds that if a patient of the character described by Dr. Robertson will not submit to the prescribed treatment there is nothing to do but withdraw from the case.

Discussion by Dr. Edmund D. Levisohn, Chicago, Ill.

Sudden cessation of urination, inability to catheterize, incontinence, and a large tumor in the lower abdomen of a patient aged 65, palpably represent a combination of symptoms meaning occlusion of the urethra, with bladder retention and overflow. Two responsible conditions frequently met with are: hypertrophy of the prostate and carcinoma of the prostate and bladder.

I suggest cystoscopy, to determine the exact character of the underlying condition. If this prove to be hypertrophy of the prostate, cystostomy with subsequent prostatectomy should be performed. If, however, malignancy of the prostate or of the bladder be found, cystostomy and electrocoagulation of the tumor mass merit trial.

Discussion by Dr. Clarence King, Franklinville, N. Y.

At first reading this problem looks simple, in fact too simple; but there may be a joker in it which is not so simple. Of course it *should* be a case of hypertrophied prostate with retention of urine and constant overflow, if we are to judge by the few findings given. The age of the patient and the difficulty or failure in passing a catheter almost confirm it. But two competent doctors who have examined the patient say there is a tumor; and an over-distended bladder can hardly be called a "tumor" as

surgeons understand it. Moreover, a "general examination", which we suppose includes a rectal palpation of the prostate and walls of the bowel, has proven negative. The patient has been under observation since July, which has given plenty of time for study. It would be interesting to know if during that time this "tumor" has increased in size; if the dribbling has continued more or less constantly; if at any time the patient's bladder has been fully emptied (and if so, its effect, if any, on the "tumor"); and if he has lost a great deal of flesh and strength while under this observation. These things the doctor knows and they are important; but your readers do not know them.

If the examination has positively ruled out a distended bladder from an enlarged prostate (or a third lobe which might exist without much overgrowth of the general gland structure) or other obstruction at the neck of the bladder (which, I maintain, appears, from a distance, like the most probable explanation of the case) then we are forced to consider a cyst, an abscess, a sacculated bladder, a solid tumor and ptosis of some abdominal organ. But it ought not to be difficult to rule out most of these and to determine the right one, unless we have a fleshy subject. But there is no "previous history" to suggest any of these except the mass, resembling a "pregnant uterus", which we must rule out. Notwithstanding all this I should want to put a catheter into that man's bladder. It looks, to me like obstruction rather than a tumor.

I have found a soft rubber catheter almost useless in such cases. A long-curved, silver, prostatic catheter or an old-fashioned Squires' vertebrated catheter, well boiled, with the links loosened up, might be made to pass; or the Coudé elbow catheter (the "sleigh runner" catheter, as my father, who was a physician, used to call it), might succeed. But if an instrument cannot be introduced into the bladder through the natural passage I should think it justifiable to aspirate above the pubes. That would clear up the nature of the "tumor". If emptying the bladder does not cause that mass to disappear, then we must accept the diagnosis arrived at by those best situated to judge. But I cannot see how a positive diagnosis can be made from the facts we have until the bladder has been fully emptied.

If catheterization proves this "tumor" not to be a distended bladder, but a new growth, as the doctors contend, then of course sur-

gery offers practically the only hope of relief. Evidently that is what has been suggested to the patient by Dr. Robertson and has been refused. Then palliation is all that can be looked for; and by the way the patient had better call in a lawyer.

This man besides being "poorly educated" appears also to be non-observant of his own symptoms, somewhat mulish and totally indifferent to his own welfare.

Discussion by Dr. I. E. Crack, Hamilton, Ont., Can.

There is very little doubt that the tumor in this man's abdomen is a distended bladder with overflow and incontinence. In most cases, failing to get a soft rubber catheter into the bladder, I have had good results from the use of gum-elastic catheters of the coué or bicoué type. Failing to introduce a catheter, the next procedure would be puncture of the bladder, suprapubically, with a trocar and cannula, to relieve the distention.

In no case should the bladder be emptied completely at one time. After gradual emptying of the bladder an effort should be made to determine the cause of the retention, whether due to urethral stricture or prostatic enlargement.

If a urethral stricture is present, filiform bougies should be tried and an attempt made to dilate the stricture. If the condition is due to prostatic enlargement—the most likely cause—I should recommend suprapubic drainage of the bladder, and as soon as the patient's condition, as shown by renal tests, justifies it, a prostatectomy should be performed.

These measures should result in a complete cure, provided there is no malignancy of the prostate.

Editorial Comment

These discussions are so thorough that there is little left to be added. I am going to take advantage of my position as editor merely to make a few general remarks and then ask Dr. Robertson to close the discussion (see below).

In the first place we confront a very disagreeable situation, from a purely social standpoint. The town in which the author of the problem practices is not a large one, and to such places the common adage that "every knock is a boost" does not apply, the opposite being the case. I have practiced in a small town, for a few months only, but my impression is still acute that, once one has a failure, the whole population seems to be about as friendly as a hyena. Under

such circumstances, any practitioner must be constantly on his guard and any failure, be it due to an error or to no fault of his, reacts on his reputation in the eyes of his clientèle.

When Dr. Robertson saw the patient he had only the statement that the first physician had diagnosed a tumor. Whether this diagnosis was correct or not had first to be ascertained. Evidently no confirmation was made and retention of the urine was accepted. The failure to introduce a soft catheter developed a stubborn opposition on the part of the aged patient, and Dr. Robertson, no doubt properly, concluded that he must withdraw.

Now here is where I must criticize my able friend and collaborator, and my criticism is presented in a spirit of friendliness, which I trust all readers will realize.

Never, *never*, NEVER use a soft rubber catheter when a patient suffers from sudden or chronic urinary retention. It will not work!

Even when one uses a metallic or gum-elastic prostatic catheter, one does not always succeed immediately, because there is a spasm of the sphincter vesicæ, which must be overcome by steady pressure of the catheter for a few minutes. If that fails, then the obstruction is due to stricture and filiform bougies will accomplish the apparently impossible task. If one filiform does not pass, leave it in place and introduce, alongside of it, another well-lubricated bougie, and keep that up. I have had, in rare instances, six filiforms in place, and finally the seventh passed. Then the others were withdrawn. Further treatment depends upon whether one has a cannulated sound in his kit.

Assuming, for the sake of argument, that one has no suitable catheter, there still is a trick available; namely, the injection of a little warm water and glycerine into the bladder with a large urethral syringe.

The other points having been ably covered by the discussants, I may be permitted to add only one more thing and that is that central nervous trouble must be thought of. I have seen overdistended bladders in spinal lesions. Here a soft rubber catheter suffices, for the time being, but the treatment and prognosis depend on the character of the underlying disease.

Concluding Remarks by Dr. Robertson

I realize that the data presented are very restricted, but they are all I have. I am satisfied that it would be interesting to have a complete laboratory report, especially that

of a uranalysis, but these things are out of the question when a patient is seen once only. I question, however, whether they would prove helpful diagnostically. I confess I was not lucky with catheterization, and though I made proper recommendations to the patient he refused any mechanical or operative intervention, but expressed a desire to be cured by internal medication.

What was I to do against such stubbornness and ignorance?

Had this man allowed us to proceed along rational lines, especially by the introduction of a catheter or by cystostomy for more or less prolonged drainage, my own diagnosis of prostatic enlargement could have been confirmed or proven incorrect.

It may be interesting to hear that, in a conversation with me, the first physician firmly adhered to his diagnosis of an abdominal tumor, though he could not tell me its character or location. On the other hand, I learned later that still another physician who was called in by the patient had succeeded in emptying the bladder by catheterization. Whether this is actually so or not I have, of course, no personal knowledge.

Remarks by Dr. George B. Lake, Chicago

One feature of Dr. Robertson's case is of sociologic rather than surgical interest, but is of great importance.

It appears that, in this small community, there was lacking that sense of professional solidarity and cooperation which are so vitally essential if we physicians are to take our rightful place in the body politic. Three doctors examined and treated this patient and, while two of them seem to have talked the case over, the findings and results obtained by the third are not even known.

When will we learn that our soundest and surest defense against misunderstandings by the laity and the inroads of the irregulars lies in presenting a united front to the world and in laying aside all our jealousies and fears, for the good of our patients and the progress of the science and art of medicine?

Concluding Remarks on Problem No. 9, by Dr. Lorenzo Chapman, N. B., Can.

[Editor's Note: This very interesting problem was presented by Dr. Chapman and was discussed in the preceding (December, 1926), issue. We are indebted to the author for the prompt transmission of the following report.]

Had anything abnormal been found in the urine or elsewhere I should have reported that fact.

Contrary to all our thoughts and anticipations, the patient is alive and as well today as before the amputation. The stump is good and he claims better use of the other limb than he had even before his illness.

My opinion is that the gangrene was the result of a septic thrombus from a diseased heart valve, causing a block of the vessel supplying the foot, with subsequent invasion by septic bacteria. All other avenues of infection were excluded so far as it was possible to do so.

I cannot agree with Dr. Junger as regards his criticism of local analgesia, as every possible care had been taken; and besides there is a time discrepancy between the analgesia and the development of gangrene.

Our error was solely that of the prognosis as to life, which is natural, for all that saved the patient was a good constitution and the will to recover. About the time I began to look for a lethal termination, he began to eat and gain strength and has been free from trouble ever since.

Surgical Problem No. 1 (1927)

A middle-aged business man who had suffered from repeated attacks of acute gonococcal urethritis, some of which the patient treated himself with injections of a solution of permanganate of potassium, while at least two attacks were treated by physicians, with irrigations of colloidal silver preparations, developed symptoms of urethral stricture for which he sought the services of a very capable general practitioner.

This physician tried all sizes of metallic sounds but as none would pass he began dilatation of the urethra with filiform bougies which were passed after some efforts.

Eventually he slipped a perforated sound of small caliber over the filiform and in this manner managed to begin dilatation, though, of course, very slowly.

During the third treatment, as described, the metal sound was pushed in over the filiform bougie as usual but, not having securely fastened the latter, the physician noticed that it was pushed into the urethra out of sight. Immediate withdrawal of the sound showed it to be empty. Attempts to locate the bougie with a urethroscope, which was introduced as far as it would go, failed to reveal the presence on any part of the bougie anteriorly to the stricture and the inference naturally was that it had been pushed into the bladder. The physician now irrigated the bladder with oil and soap water several times but the fluids were expelled without bringing along the foreign body. The frightened patient demanded consultation and a prominent urologist was consulted during the same afternoon.

The consultant advised internal urethrotomy and extraction of the bougie through an "operating" cystoscope.

Requirement: Is the urologist's treatment correct; or is there any other method available that is apt to bring about the desired result?

Announcement

A number of interesting and able discussions of problems have reached me too late for use. Please remember that there is an extra month allowed between the publication of a problem and its discussion, but manuscripts reaching me after the 5th of the month in which they are to be published come too late. The editor of the Seminar desires to express to all contributors and friends of the Seminar his best wishes for a contented and fruitful new year.

G. M. BLECH.



Clinical Notes and Practical Suggestions

The Problem of the Country Doctor

OF late years I have heard and also read a great deal of the fast-vanishing country doctor. The many good reasons for this are obvious. I know of many country districts that once supported one or more physicians which now have none.

One reason, as was stated by Dr. Neave of Ohio, in the November number of *CLINICAL MEDICINE*, is the high standard of requirements of all reputable colleges and of most states and countries for the attainment of the necessary qualifications for licensure. This makes the course so expensive that the average ambitious young man, excepting perhaps a few of the well-to-do, can never hope to get back the money expended by locating in the country, from which he has been weaned by the years of town life.

With the many free hospitals and clinics every city or town of any size now has, and with good roads and almost every family owning a car, it is very convenient for the people to pass by the home doctor on the way to the city for their medical needs. Those who can afford to pay go to the hospitals, believing they are getting better services than they could receive at home—and often times justly so. The poor go to the hospitals for free treatments, often having no other place to go. No country physician can expect to equip himself to compete with the conveniences of a city hospital.

With these two classes of people removing their patronage from the local doctor, his position is rendered very discouraging and unprofitable. He must eventually get out or starve out.

It is also painful to find, as I have in my travels, how, in some sections, especially here, the shops, mines and corporations employ for first-aid men, not physicians—many not even nurses—but people with no previous training or qualifications, and entrust them with the care of the sick and injured—prescribing, performing minor op-

erations, administering narcotics indiscriminately—instead of giving the young doctor the chance and experience in the life-work for which he put forth a mighty effort and spent his time and money.

Legislation is very tardy indeed in some states. I think if the medical fraternity would stand together and present the exact situation, as it exists, to those who are unfamiliar with the question, but are entrusted to legislate safeguards around their people, a great change would be brought about for the betterment of the people as well as the physicians.

Again, the time was when a physician could sell drugs, which enabled a country doctor to make a little on the side to enable him to work out an existence; but today the doctor can hardly dispense to his own patients.

The cost of living has not as yet hit the rural communities as it has the cities, and it is hard for the country doctor to understand that drugs have advanced in price more than proportionally. This, of course, means that the physician must have a larger fee than formerly, which, if charged, irritates many who, to show their independence, go to the city with their money; or perhaps they have a free dispensing doctor, as most cities have, who likes to work cheap and do a big business on little profit to make a showing of hollow popularity.

I have found this sort of medical man wherever I go. Some will make calls in the country, under the very nose of a good physician, for less than the local doctor justly charges. The laws of some states, it seems, are construed to be less considerate of pathologic conditions of human flesh than of the animals. We should justly have both,

I think most of us would much prefer to see a sufficient number of the country doctors; but these men must eat, they must rear and care for their families. In the rural districts people look upon the doctors as men of money and charge accordingly;

but when they come to the doctor for help they expect him to donate his services. The country doctor of today is the most poorly paid man in society.

It is up to the people. If they want a doctor handy in their communities they must patronize and pay him. Disloyalty to him means disloyalty to themselves, which they will realize sooner or later and sometimes bitterly. He cannot, in justice to himself and his family, remain in the country, unpatronized, and starve.

There is money enough spent in almost every community on quacks and patent medicines, many of which are worse than worthless, to keep a doctor comfortably. In most cases, they come finally to the home doctor, broke; he is good enough to treat them when they are stranded.

Let us hope, even though we may fail to reap the fruits of our hopes, that the people will enlighten themselves to the extent that they may realize it is not rank or state, but money kept in their community that makes it great.

E. G. RAPPOLD,

Morgantown, W. Va.

In the November issue of CLINICAL MEDICINE, Dr. Neave, of Dresden, Ohio, asks why the country doctor is disappearing. While not disagreeing at all with his discussion, it may be pointed out that the country doctor is disappearing for the same reasons that is causing the disappearance of the country resident in general.

I did not realize how nearly complete this disappearance had become until it was emphasized by the comments of a Parisian friend who rode three or four hundred miles with my family, and until I compared it with my own experience, recently, in similar tours through Europe. There are a great many persons living in villages and in the open country, but there are comparatively few regions where there is any longer the difference in dress, speech, education and customs that was noticeable, even a generation ago; and there never was an American "peasantry."

The country doctor was, in reality, a village resident. Most villages have increased in population very decidedly and practically all have developed extrinsic comforts and conveniences so that, on the one hand, there is no need for the hardships and handicaps of the country doctor of a generation or two ago and, on the other hand, a general demand on the part of his

clientele that certain crudities regarded as inevitable, formerly, should be eliminated.

Not to go out of my own neighborhood, I recall when a young man, taking a long bicycle trip over dirt roads and stopping to see a college mate who had opened an office in a minute Xville, far removed from modern conveniences; remote from any kind of rapid transit except that afforded by an exceptionally speedy horse or a bicycle, in favorable weather; hours away from the relatively nearby city, so far as medical meetings, consultants and hospitals were concerned. Now that same spot is part of a city of about 30,000 inhabitants and, for practical purposes, part of one of 700,000. Except for phenomenal storms that isolate residents of large cities from one another, it is not more than forty minutes away from any medical and surgical service that might be required, and it has exactly the same public utilities that could be had in New York or Chicago, plus an advantage as to the price of gas on account of a natural supply.

Some twenty years ago, quite a good many young surgeons and specialists decided that the tedious, more or less humiliating and somewhat uncertain road to professional success, via an assistantship in a large city, could be short-circuited by establishing a small hospital with high-grade equipment in a village of say 3000 to 5000 population. This required some capital (but not necessarily funds already possessed) and some nerve, but, granted ability and industry, the experiment usually proved successful, largely for the reason that a few months in a small community and its tributary country would afford the same publicity and reputation that it would take years to gain in a large city. So far as the city surgeons and specialists were concerned, there resulted a decided and fairly rapid decline in consultation work. Their services were needed in just about the same proportion for country residents as for city residents.

Now, allow me to add just one other point about the country doctor. I had quite a large acquaintance among physicians who resided in small villages and saw patients in the open country, a full generation ago. They had sense enough to wear warmer clothing for the winter drives than my friends in the city wore; for some reason that no one could ever get through my head, they had their horse hitched asymmetrically to a sleigh; they dispensed more candidly

if not more liberally than city residents; there were various minor differences in habits and problems, some to the advantage of the country doctor and some most decidedly not, but they were, in all essentials, just the same kind of men as their brethren of the city.

A. L. BENEDICT,

Editor, *Buffalo Medical Journal*,
Buffalo, N. Y.

Contributing to the discussion, "Why Is the Country Doctor Disappearing?" consider this:

Why should he not disappear? What is there to attract the young man to take up the practice of medicine in the country? After high school, two to four years of college, four years in medical college, one or two years internship; and during this time the loss of the financial rewards of at least six years in some gainful occupation which, if coupled with the same amount of study after working hours (which working hours about correspond in time occupied, with the time taken up by lectures, clinics, laboratory work, etc.) will, in most instances, have brought a reward averaging far above what any average medical man can ever hope to attain, notwithstanding the fact that he is on call twenty-four hours a day instead of eight or ten, which is all that would be asked of him in any other occupation.

If he practices in the country and expects to have any success at all he must carry a stock of drugs, instruments, dressings, apparatus, furniture, etc., which will frequently exceed in value what the average retail merchant in his locality has invested in stock and fixtures. He must maintain a clean, warm office, an office attendant or some one to look after his calls, an automobile or two, and then wait until crops are harvested to get his pay. His fees must necessarily correspond and articulate with the incomes of the people among whom he works.

"A prophet is not without honor save in his own country," but the country doctor seems to be without honor anywhere. Almost everybody seems to delight in taking a crack at his brother out in the hills, and so it happens that, in doubtful or complicated cases—and many others—the city specialists are called in or visited. It would require a separate article to tell you about some of these specialists, some of these *wonder men* about whom Dr. Blech speaks in an article in a

recent issue, with their solemnly wagging heads, their clairvoyant diagnoses, their shrugging shoulders, their baldly apparent, amused and sympathetic tolerance of their less favored country cousins.

Fees which would be indignantly denied the local man are cheerfully paid—cash in hand—while the country practitioner waits interminably for his modest pittance. The ordinary obstetrical fee in the city is greater than the country doctor-surgeon receives for an episiotomy or a caesarian section or a difficult forceps case.

For the city man, adequately equipped hospitals, laboratories, and trained assistants are immediately available. Consultative opportunities are at hand and grave responsibility is divided. Professional, moral, and mechanical support are at his elbow. Why should he come to the country where frequently he has to assume the duties of doctor, surgeon, nurse and maid, with nothing but a decrepit stove and some badly dilapidated kitchen utensils to help perform the rites of his profession?

Just why should one expect the young man to settle down in a country town where a preponderant part of his prospective clientele is comparatively poor, ignorant, superstitious; where even supposedly intelligent people still have the witch doctor bore a hole in a tree and bury a lock of the patient's hair therein, mumble a few words of jargon, and then in all seriousness come and tell the eight-year student of scientific medicine how this method had succeeded while he had failed; where the veterinarian is called immediately for a sick cow or horse, while they wait until the human victim is almost moribund before calling the doctor; where the "vet" gets \$15 for delivering a cow, while the "doc" frequently gets less for a human confinement and waits forever for his money; where kicks are frequent on a dollar office fee, including 50 cents' worth of medicine and half an hour's consultation, while they cheerfully pay a couple of dollars for gas and oil to drive the "Lizzie" into town?

A carpenter in Chicago gets \$1.50 per hour and works eight hours, giving him an income of \$3,756 per year without any Sunday or night work, and all he has to have to do a first-class job is a pair of overalls and a bag of tools—no office equipment, no office rent, no attendants.

Forget the country doctor for a moment and tell me how many doctors in Chicago have a net income of \$3,756?

Figuring the cost of a medical education, plus the wages or income lost while acquiring it at approximately \$30,000. *How many doctors in the city or country are making enough net income out of their 365 days of labor, being on call twenty-four hours a day, to equal the interest on the original investment at 7 percent?*

How many medical men in the world are still gullible enough to really believe that the average doctor is in the game from purely altruistic or philanthropic motives? A minute of real thinking ought to convince anybody that doctors are not physically different from other human beings—they have bellies to fill and backs to keep warm; they also have families to rear, feed and clothe and send to school. Neither are their mental processes different. They have desires and ambitions like other people. If you strike the patellar tendon you get the patellar reflex. You get it from practically every normal individual. Observe the doctor in the social clinic. Bump his financial nose and you get the same reflex, exactly, that you will get from the hod carrier or the banker—and why not?

If the young man has been enthusiastic, optimistic and hardy enough to graduate in medicine, can you reasonably expect him to take this enormous investment into the back woods and bury it in a country town? He isn't looking so much for experience as for returns on his investment, all the high-sounding platitudes regarding the nobility of the profession and its altruistic aims to the contrary notwithstanding. None of this, "Your labor is on earth, your reward in Heaven" stuff for him!

The answer to your query, "Why is the country doctor disappearing?" is absurdly easy.

What to do? Ah, that is another matter. Dr. William Allen Pusey, in a series of articles in the *Journal of the American Medical Association*, covered the situation pretty thoroughly. Dr. Neave in his article made some pertinent suggestions.

Look over the list of medical men who have done things during the past quarter of a century. How many of them worked out a curriculum approaching that required today? Yet see what they accomplished! The chaff disappeared: The wheat remained to enrich the earth. There were then, as there are today, many square pegs in round holes. Many a man in those days went from grammar school, through two or three years of medical training, and became a great clini-

cian. Many a graduate today, after eight or ten years of intensive cramming, while intelligent enough, is a medical dud. Ever run across the carpenter who had been in the game thirty years and couldn't saw a board straight? Lots of 'em fairly smart men, too. One of the most learned men I ever knew in medicine couldn't tell the difference between a prolapsed uterus and a varicocele in the sick room—(that is almost literally true). He was a complete fizzle as a practitioner. You know a lot of them.

It is a question of *flair*, adaptability, natural talent and inclination. A thousand years of training would not make some folks musicians, or artists, or artisans, or doctors, or surgeons; yet thousands of near-doctors and surgeons are functioning everywhere—as many in the city as in the country.

Perhaps the talented grammar school lad would make a wider mark than the college man without talent. There are more hypocrites in medicine than in the church. Perhaps if they could get rid of the scales over their eyes and the prejudice and selfishness in their hearts there might be found a way out.

Holmes once said of the lawyer, "He sees justice in the hand that holds the promised fee." How about the expert medical men, the neurologists and alienists in particular, who qualify as expert witnesses? How many real doctors—not to mention the public—can distinguish any real difference between these fellows and the fakirs we are always ranting about?

How many medical men really believe—let me repeat—REALLY BELIEVE that medical ethics is a going concern. Of course, a lot is published in the journals; much brotherly advice is passed along; we blow up our little balloons and strut and brag on the printed page; but the public knows, and so do the editors of these journals know, but the circulation manager and the advertising manager put on the soft pedal and the result is a mass of inane generalities.

One of these days, when the situation becomes acute enough, the hard-boiled politicians of the various legislatures will solve the problem the doctors are now finding so difficult. They will probably solve the trained nurse problem at the same time and it is quite likely they will not find it so very difficult after all.

The medical profession has become unionized. The initiation fee is \$10,000 to \$15,000

and eight to ten years' apprenticeship without pay; the dues are a lifetime of toil with inadequate remuneration. Our medical colleges give the young man a multiplicity of tools that he does not know how to use in the sick room. He is not taught to think—he is only crammed with alleged facts which, to his sorrow, he soon finds are not facts at all. He seldom sees that typical case in actual practice. He is in the same boat with the teacher of mathematics who, in practical affairs, takes up pencil and paper to laboriously figure out the value of 28 dozen eggs at 32 cents a dozen. *His real education begins when he leaves school.*

If your milk man bought a Rolls-Royce to deliver his product you would say there was something the matter with his head. You fail to find the half-million-dollar department store in the country town; just why should you be surprised at failing to find the \$30,000 graduate in medicine scrambling for position at the cross roads?

E. M. CUNNINGHAM,

Cassopolis, Mich.

I have just read Dr. J. L. Neave's article (CLIN. MED., Nov., 1926) on why the country physician is disappearing, and I wish to say that he has the correct and only key to the solution. As he says, it takes years of study and a fortune to back the student before he can be in position to earn a living; besides the rural districts are in financial straits already.

Why are so many banks closing their doors all over the United States? Frozen accounts! That means the farmers are going to the wall by thousands; their mortgages are being foreclosed, leaving them practically ruined in many instances. This is the condition in every state in the Union, to a greater or less degree. If this financial depression exists (as it does!) how are the people going to be able to pay even the country doctor, let alone the higher fee required for securing a city physician?

Dr. Neave leaves the inference that the people are employing the irregulars; and it is a fact, as shown by statistics, that these cults are turning out men by the thousand in far less time and at less expense than have ever been required for a medical education. These unqualified men are called "doctors", and the ruralist, ignorant of the exact facts, is employing these men, which of course is giving them a practical schooling at the expense of the people. Yet they are licensed by the States!

If the medical profession is going to stand for the people they must place the opportunities for a medical education on a par with the cheaper schools; then you will see the physically perfect and mentally capable young men from the rural districts preparing themselves to enter the profession—and only then.

I am not one to decry the high standard of medical education, by any means. God knows, *no one* has more medical, surgical and anatomical education than he needs to meet the thousands of difficult problems which arise after he enters general practice. But what about these "Doctors", who know practically nothing of the physiologic action of the system and of therapeutics? The people are the ones who have to pay for lack of experience and the more careful education in the preparatory courses.

Unless something is done in the next few years to meet these conditions, by providing more competent and less expensive means of education in the medical line, there will be a greater disparagement of country physicians. Ten to fifteen years more will wipe out the great majority of those doctors in the rural districts who are now meeting the needs of the people who must have medical attention but who are not able to pay high prices. Who is going to do this? The State Board of Health, by providing health officers on salaries in every county seat? Or some health insurance company which will guarantee the pay for medical attention, also providing to the policy holder medical attention? Then where are we? Tied hand and foot, to work at prices fixed by non-medical men! What is the answer?

J. B. SMITH,

Warsaw, Mo.

My article in the November number of CLINICAL MEDICINE, "Why is the Country Doctor Disappearing?", together with your remarks on the same, seem to be bringing some results. Your journal came into the hands of Dr. F. S. Stevenson, of Aurora, Missouri, and I am enclosing his letter written to me, also a copy of his article from the *Missouri Farmer*, Columbia, Mo. If you care to make use of the enclosures, kindly give the doctor and the *Missouri Farmer* the credit they deserve.

I gave the extra copy of your journal that you sent me to one of our prominent surgeons in Zanesville. He remarked that, this year, at a meeting held under the auspices of the Mayo Brothers, he made a

speech to the assembled physicians covering identically the same ground as my article.

JAS. L. NEAVE,

Dresden, O.

[The article by Dr. F. S. Stevenson, of Aurora, Mo. referred to by Dr. Neave, is excellent. His main points are these:

1.—The length of time and the financial outlay required to gain a modern medical education are prohibitive for many able men.

2.—The modern medical curriculum is intended to make specialists rather than general practitioners.

3.—A really good, sound, high-school education is ample preparation for entering upon the study of any of the professions.

4.—If the country boys could get a medical training which they could afford, they would be glad to go back to the country to practice; and they would be ideal men for that work.

5.—Many country locations will give a doctor a larger *net* income than will most city practices.

6.—When a man has graduated from one of our high-class medical schools he should be allowed to practice anywhere in the United States without further examination or molestation.

All these articles are exceptionally sound and meaty, and the burden of the argument seems to be about the same: Too much specialized cramming with *knowledge*—at a high price—and not enough development of *wisdom*. Too much dresssuit *instruction* and not enough overalls *training*.

Now let someone with a gift along such lines draw up and submit to us a set of *resolutions* which can be adopted by our County Medical Societies and forwarded to our Assemblymen and Congressmen, urging appropriate action. We will consider and sift all suggestions made and do all we can to help in *getting something done about it*.

—ED.]

REVERIES OF A COUNTRY DOCTOR

How'd you like to be a doctor in the country far away—

Where you can't collect a dollar till the farmer sells his hay?

With a lot of patients scattered all around among the hills—

Where the farmer has to sell his hogs before he pays his bills?

Where you've got to treat his family—then take the farmer's notes,

For he just can't pay a dollar cash, until he sells his oats?

Where you've got to be on duty every time a child is born—

But you can't collect a dollar till the farmer sells his corn?

Where you've got to go on horseback with a satchel full of pills,

To supply the poor who always have a multitude of ills,

Such as whooping cough and chicken pox, pneumonia and grippe,

Scarlet fever and the measles—maybe adenoids or "pip",

Fallen arches, mumps and hookworm or perhaps the prickly heat—

Still you can't collect a dollar till the farmer sells his wheat?

Such a practice would discourage the majority of men—

Who would quit and swear they'd never practice medicine again,

Yet withal some country doctors seem to like just such a life,

And whenever they get married, they select a country wife,

After that they don't mind waiting for a bill of any size,

Just so long as they don't have to wait until the farmer dies,

No offense is meant and, so I hope, no farmer makes a "holler",

For if given time, I'm sure that each will pay up every dollar,

Maybe you'd prefer to practice in some little country town,

But the folks there don't know what it means to pay "a dollar down"—

Or perhaps in some big city where you can't collect a cent,

Till your patients pay the grocery bill, the coal man and the rent.

Just a bit of good advice to those who have all sorts of ills:

When you call your family doctor, you should promptly pay his bills,

If you hope to be admitted when you reach the pearly gate,

Better square up all your doctor bills before it is too late,

For if you can't show a clear receipt, you really ought to know—

That St. Peter won't admit you—but he'll tell you where to go.

—DR. GEO. F. PAYNE,

Louisville, Ky.

MOTIVE IN MEDICINE

One thing can never be learned, but this students of medicine must themselves bring with them as their best endowment in their future calling. All knowledge attains its ethical value and its true significance only by the humane sense in which it is employed. Only a good man can be a great physician. All your knowledge and ability receives the stamp of genuine nobility only by the spirit of true humanity in which it is employed.

With the intellectual and the scientific education, the education of the feelings and the manners must run parallel. You know that it is not the duty of the clinic to teach the latter, but, as your future instructor, I hold it my duty at the commencement of our common labors to at least point out this question, which I look upon as one of the weightiest importance for all professional treatment.

—Hermann Nothnagel (in 1882).

PROGRESS WITH GLANDULAR THERAPY

To the question, "Are You Making Progress?" I can emphatically answer in the affirmative, for the last five years have realized more definite accomplishment and demonstrated broader fields of promising endeavor, than the preceding twenty-five. This has resulted from an investigation and adoption of glandular therapy. Transplantation has shown gradual absorption of the transferred tissues, but combining the various glandular secretions in the form of serums, has given restoration in many cases where previously I signally failed. The work embraces practically all of the endocrine secretions, and the results have truly been gratifying, not to say often spectacular.

The announcement as to hypotensine, on page 758 of the October CLINICAL MEDICINE prompts me to mention that, during the five years last past, I have treated something over 500 cases of vascular hypertension, with a restoration to nearly normal pressures in practically all cases having a systolic pressure not to exceed 200 mm., embracing the functional class. Of the organic cases with arteriosclerosis, great recession of clinical symptoms has resulted, and many apparent sclerotics have proved to be cases of hyperpiesia. Many of these also returned to nearly normal, and in those with extremely high pressures (250 to 300 mm.), radical

relief was almost invariably experienced. In fact, during the five years, there has been no case of apoplexy following my work, and I am hoping that it may not occur, but these cases require occasional attention, from several weeks to several months apart, to keep them comfortable.

During the last five years, I have treated upward of a thousand cases by glandular methods, and have repeatedly been astounded by the favorable reactions following such treatment.

Among these, in addition to the hypertensives, it might be mentioned that in the various forms of rheumatism, at least 75 percent have responded favorably. In peptic ulcer the showing has been almost unbelievable—almost 100 percent relieved. In dementia precox, nine cases out of twelve have recovered. Neurasthenia, asthenia, autotoxemia and allied troubles have yielded with almost no exception. So, you can see that the vaunted "rejuvenation" bunk that has so delayed the advance of glandular therapy has no place in the work done.

J. F. RITTER,

Maquoketa, Iowa.

PROGRESS IN PUBLIC HEALTH

In the October issue of CLINICAL MEDICINE, I read with interest the column, "Are You Progressing?". Since I feel that I am, I am responding to your request for progressive ideas.

Arkansas has a "backdoor left open" by which the State Board of Health is licensing midwives to take cases in confinement. This lowers the standard of the medical profession in our state. Arkansas has been the dumping ground for incompetent physicians. I can see why this has been so, from the fact that we can not make retroactive laws; where a person has once been licensed to practice, his license cannot be annulled for this reason, and because of the "floating physicians" in Arkansas, I saw that we needed some plan whereby medical science could act in its most proficient way, and to show up its worthwhileness in its own light.

In order for this to be done, I thought of a feasible plan that would be fair to medical science, fair to the patients and yet act in an efficient way in the present state of affairs, and at the same time make it so that diploma mills, and short cuts in medical education could not exist. This plan forces the physician to prove his worth, his ability. One would not care to buy a diploma or

practice medicine when not competent if he had to make public his record in his profession and rely on his ability for his reputation.

I have prepared a modified death certificate which, when put into use, will put an end to some of our problems of incompetence today. This death certificate, if universally adopted, and if made a public record at specified times, would mean fairness to the patient, fairness to the honest doctor and to medical science and medical cults, as well as to the public generally. The information obtained from this death certificate will harness the brains of the medical profession and will broaden our source for new thought in health; and it will enable the doctor in rural districts to prove his ability to save life in different circumstances.

This certificate will serve somewhat as postgraduate information to us all. It will enable the people to see what mistakes are being made that cause loss of life. It will also show each medical cult is worthy of its hire; it will show each medical cult's shortcomings; it will prevent the different cults from going out of their professional field, because this record will show up their successes and failures. Incompetent medically trained men will lose confidence in their ability to practice in certain lines because of this published record.

It will also be the most efficient way of teaching preventive medicine that I can think of. This system will relieve the problem of vital statistics; will make better the reports on venereal disease, also birth and death reports. Each doctor will endeavor to make his record accurate as a recommendation to gain confidence of his patrons. It is not necessary to alter the present death certificate. I advocate the addition of seven statements to the present certificate. My main point is to have the death certificates on record published periodically in the county papers; this should be done to make it effective.

Incompetent midwifery would not exist if the responsibility was assumed publically by the midwife for failure to save life. I had a bill introduced in the Arkansas Legislature to have the use of this death certificate made a law. It was defeated because of the political influence over the medical profession.

Politics are controlling the medical profession in this state. In order to overcome this unfairness, and in order to get the opinion of the citizens about carrying out

certain health projects, I organized a Health Education Society. The sole purpose of this society is to do what is RIGHT in every way pertaining to the health of our American citizens. I do not care to foster such a society to do the things that our men in authority will not do. I much prefer letting those "at the top" do the things to safeguard the health of our people. I shall gladly discontinue this society if the A.M.A. or the Arkansas Medical Society will take steps to improve certain conditions and will eliminate politics and put forth proper effort to save the lives of our people, and put the medical profession on a clean, efficient basis.

Health Educational Society's Death Certificate

Name Date 192..... Age.....,
 State..... County of
 Town or Township.....
 Direct cause of death and duration:.....
 Contributing causes of death and duration:..
 Direct cause of treatment failing to save life:
 Contributing cause of treatment failing:.....
 What was done to prevent other deaths in like manner?
 Doctor's Name School or Cult
 Date to Date Institution Treated in
 to
 Signed: Address
 R. L. FRASER,
 McCrory, Ark.

[This sounds as though it might be a very valuable idea. It would certainly put the doctors on their metal, if it could be adopted. In any case, it is nutritious food for thought.

How many physicians are devoting as much time and thought to the larger health problems of their communities as Dr. Fraser is giving? It looks to us as though there might be room for some good work in this direction.—Ed.]

RECENT IMPROVEMENTS IN MICROSCOPES

Recent developments in the design and use of the microscope were fully illustrated in the instruments and apparatus exhibited at the Optical Convention, held recently at the Imperial College of Science, London.

A microscope has three main elements: the illuminator; the object glass; and the stand which holds the optical parts and

object in their proper relative positions. Each of these elements is important, and in all three very notable advances have been made. A series of apochromatic object glasses is now provided, which are superior to any heretofore used.

The important British work on filter-passing microorganisms—"filterable viruses" as they are called—demanded an accuracy of focusing and a rigidity which was not provided by any existing stand, and such a stand has now been evolved.

The improvements in illuminating systems are, if anything, more important even than those in object glasses. A dark-ground illuminator has been developed which permits the use of higher powers than heretofore. Almost immediately this resulted in valuable new knowledge of the structure of the microorganism associated with a prevalent disease. Other new illuminators for opaque objects, including one peculiarly valuable for metallurgical specimens, have increased the efficiency of the chemical and metallurgical applications of the microscope.

One may mention the entirely novel combined illuminator used in very important recent investigations, in which a high aperture dark-ground illuminator is mounted concentrically with and encircling a quartz condenser. The former secures visibility, and is used to locate the microorganisms, while the latter is used with ultraviolet light to secure the image on the photographic plate.

THE ETIOLOGY AND PREVENTION OF POSTOPERATIVE WOUND INFECTIONS*

The surgeon who says he never has post-operative wound infections speaks inaccurately or has done little work, because reliable statistics show that these infections occur in from 7 to 17 percent of cases operated upon by thoroughly competent men.

A number of factors enter into this matter of wound infections and the surgeon can not always be held wholly responsible. The operating-room staff and the nurses are not always above suspicion. There are, however, several things for which the surgeon is directly responsible, chief among which are his method and thoroughness in cleansing his hands and the technic and rapidity with which he does the operation.

*Abstract of an address by Dr. Max Thorek, of Chicago, before the North Shore Branch, Chicago Medical Society, October 5, 1926.

Accuracy and thoroughness should not be sacrificed to speed, but, other things being equal, the rapid operator will have less infections than the slow one, because the patients' resistance is less depleted by the anesthetic, by loss of heat and by trauma.

Hand cleansing is extremely important. Too much reliance should not be placed on antiseptics. The hands should be *vigorously* scrubbed with soap and warm water for *twenty minutes* or more and then the fingertips thoroughly immersed in a 1:1000 solution of metapen.

At all stages, from start to finish, the surgeon must be under the control of a highly developed "surgical conscience"; and he must have "guts" and common sense. He must be accurate and gentle.

After thoroughly investigating the questions of hand cleansing, sterility of instruments, dressings and ligatures and various other factors, and finding them entirely satisfactory, there remained for consideration the *quantity* of catgut used in an abdominal operation. Animal and clinical experiments have shown that this is a factor of importance.

If the surgeon ligates every vessel as he cuts it, he will place from 10 to 20 or more catgut ligatures in the wound. If, in addition, he stitches the peritoneum, muscle, fascia, subcutaneous tissue and skin with catgut he will have a mass of that substance in the wound which may well tax the patient's tissues for its absorption. If the resistance is high, absorption will take place promptly and satisfactorily. If not, this will not happen and wound infection will result.

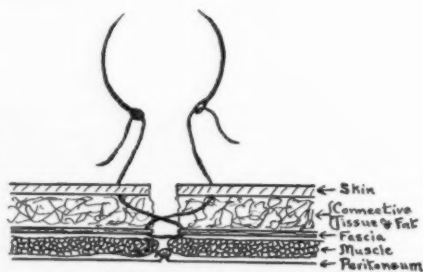


Diagram of the stitch described by Dr. Thorek

In order to keep the wound as free as possible from catgut, we clamp all bleeders as they are cut, but do no ligating until the operation is completed, when it is found that forcipressure has controlled nearly all of the hemorrhage. We close the peritoneum with one continuous catgut suture and then

unite all the other structures with one series of silkworm gut, dermal or other nonabsorbable sutures which are removed as soon as healing is firm. These sutures are cut long and are armed at both ends with large, curved needles. They are passed through the tissues *from within outward*, so as not to carry any infection from the skin into the wound. When all sutures have passed they are then tied, closing all structures. We do not cut the muscles, but separate the fibers, so that no muscle sutures are necessary. The technic of passing the suture is shown in the accompanying diagram.

No claim for originality is made regarding any of these suggestions, but observation has led us to believe that a restatement of these cardinal principles will be of considerable practical value.

G.B.L.

CLINICAL RESULTS WITH NEONAL

Having used the new hypnotic-analgesic, neonal, in a number of cases I feel that the results obtained may be interesting to the profession.

Case 1.—Gonorrheal epididymitis, severe.

A rather radical epididymotomy was performed September 15, 1926.

Pain was extremely severe, requiring morphine, $\frac{1}{4}$ grain, three times a day for four days. After this he was given acetylsalicylic acid, amidopyrine and triple bromides during the day and $\frac{1}{4}$ grain of morphine at bedtime, until September 27. Relief was only partial and sleep was neither sound nor continuous.

On September 29, 30, October 1 and 2, the patient received $5\frac{1}{2}$ grains of allonal at bedtime and slept only fairly well. On October 3 no medicine was given and he slept only about one hour. From October 4 to 6 triple bromides, 30 grains, and allonal, $5\frac{1}{2}$ grains, were alternated and produced intermittent sleep.

On October 7 the patient received two tablets (3 grains) of neonal at bedtime, with hot milk, and slept soundly through the entire night. October 8 he was given two tablets (3 grains) of luminal and did not sleep so well. He requested neonal, and this was given thereafter, with excellent results, as long as he required an analgesic-hypnotic.

Case 2.—Hemorrhoidectomy.

At 9:15 A.M., October 7, 1926, just prior to operation, the patient was given a hypodermic of morphine, $\frac{1}{4}$ grain, and was nau-

seated immediately following the operation. Another hypodermic of $\frac{1}{4}$ grain of morphine in 50-percent magnesium sulphate solution, given at 3 P.M., was also followed by nausea and severe pain at the site of operation.

At 8 P.M., two tablets (3 grains) of neonal were given, with half a glass of hot water. The patient slept soundly during the entire night and most of the following morning. The same dose of neonal, given the following night, produced the same result and the patient was so pleased that he asked for a supply of the drug to take home with him.

Other Cases.

I have given neonal to five obstetrical patients the night following delivery, with the happiest results. I have also administered it in a number of cases of simple insomnia and the effects have been uniformly satisfactory.

Only one patient, a woman 42 years old, who received neonal following a hysterectomy, experienced any unusual symptoms. She slept well but complained that she had dreams of flying, which she attributed to the drug. It is my firm belief that the neonal had nothing to do with this, but that it was due to the effects of the ether anesthetic and the operation. I was fully satisfied with the outcome.

In my opinion neonal is superior to any of the other drugs which are recommended for similar purposes and I have no hesitation in recommending its use whenever it is indicated.

J. O. HELM,

Highland Park, Ill.

BOTTLED SUNSHINE

For over a century and a half cod-liver oil has been known to exert a favorable influence in rickets. Proof that cod-liver oil had a specific curative action in rickets, apparently similar to that of sunlight, was obtained in this country in 1921 and the cure demonstrated by x-ray photographs of the bones of rachitic children. As a result of even more recent experiments, it is probable that the action of sunlight and cod-liver oil in the cure of rickets is the same and that the oil from the liver of the cod fish has acquired its antirachitic power from the sunlight passing through the water to the fish or to the plants eaten by the fish. It has been definitely shown that vegetable oils, milk, green vegetables and grains may

also acquire this antirachitic power if treated with ultraviolet radiation. When cod-liver oil is ingested by the infant the antirachitic power which it has stored up is liberated, to regulate metabolism and cure or prevent rickets. Thus cod-liver oil may truly be called "bottled sunshine."

The Children's Bureau has conducted a rickets demonstration in New Haven for three years. Every mother coming to our clinic is shown how to give her baby cod-liver oil. The following routine is followed: Babies seen before the end of the first month of life are given one-half teaspoonful of pure cod-liver oil twice a day. During the second month the dose is increased to one teaspoonful twice a day. Gradually this dose is again increased so that it amounts to one and one-half teaspoonfuls twice a day or even one dessert-spoonful twice a day at the end of the third or fourth month. It has been found that this amount of cod-liver oil is well tolerated by babies and that it can be successfully given in summer as well as in winter. During the hot summer months, the oil is best given in the early morning and at night. The bottle of oil should be kept cool.

CHILDREN'S BUREAU,
U. S. Department of Labor.

PERINEAL PROSTATECTOMY*

In the Brady Urological Clinic, Johns Hopkins Hospital, Baltimore, they use epidural (sacral) anesthesia for all prostatectomies, employing 20 cc. of a 2-percent solution of procaine. This gives complete satisfaction in 92 or 93 percent of cases. In the others, a few whiffs of ether have to be given.

The position of the patient is important. In order to get a good exposure the pelvis must be flexed forward on the spine. This position is best obtained on the Johns Hopkins table, devised by Dr. Young.

The perineal operation saves the levator

ani muscle and the internal vesical sphincter, as these can be pushed out of the way under direct vision.

The staff or "holder" which is used to steady the parts during enucleation, should have its beak bent at an angle of more than 90 degrees with the shaft, otherwise it is difficult to introduce.

The right prostatic lobe is freed first; then the left. The right lobe is then removed (the middle lobe usually comes with it) and then the left.

In closing the wound, a *Davis bag* is introduced through the opening in the prostatic urethra. The bag is inflated with water and the bladder washed out through the drainage tube.

One deep stitch is placed so as to approximate any separation of the ends of the levator ani muscle, and one stitch unites the central point of the primary parabolic incision.

A heavy roll of gauze is placed between the two tapes of the Davis bag, over which the tapes are snugly tied, thus making firm traction which controls hemorrhage and obliterates "dead spaces".

After 24 hours the tension is carefully relaxed and if bleeding follows it is reapplied. As soon as the traction can be removed the water is gradually let out of the bag, a little each day. After four or five days it will be empty and can be removed without difficulty.

The mortality following this operation is only about 3-percent; and 80 percent or more of patients in whom the operation is successful retain as much as or more sexual power than they had prior to operation.

Dr. Young performs this delicate operation in 18 or 20 minutes, demonstrating each step to his guests in the clinic, and without the slightest appearance of hurry.

GEO. B. LAKE,

Chicago, Ill.

*Notes from the Clinic of Dr. Hugh Young, Johns Hopkins Hospital, Baltimore, Md.

The Leisure Hour

Soul's Food

WHEN Bruch's great chords are adequately played
The priests and Levites pass with solemn tread,
Moses and Aaron marching at their head
In splendid sacerdotal robes arrayed.
McDowell brings the sachem unafraid,
With head beplumed, wrapped in his blanket red;
While by the grand old Germans I am led
Through perfumed gardens, flecked with light and shade.
Chopin's wild minor strains near break my heart,
And Wagner makes my pulses throb and leap.

Just as my body must have meat and sleep
That hand and brain may play their fitting part,
My soul must feed on Music, lest it die—
Celestial food, to live and labor by!

—G. B. L.



Rounding Up A Slick Doctor In The Cow Country

DR. MONAHAN came down into the cow country about the time the picturesque cow boy, with his wide felt hat and his circus-riding skill, was gradually being replaced by the hardy farmer and the soft-spoken Mexican. Of pleasing personality, attired in garments in accord with the latest metropolitan fashion, the newcomer gradually made a place for himself among the men and crept into the good graces of the ladies.

Of all these, Dr. Monahan seemed to prefer Mrs. Jessica Werner, a widow. Mrs. Werner's bank account was reputed five figures plus, and she was possessed of 4,000 acres of good land. It was, apparently, without conscious effort on his part that Mrs. Werner was persuaded to lay aside her name and her widowhood and become Mrs. Monahan.

Almost from the day of the wedding, the doctor began to display evidences of prosperity. He established a commodious office nicely furnished. His name spoke loudly in the local weekly. The doctor's office became a kind of headquarters for "forward-looking" people. Dr. Monahan had started something. He had put "pep" into things. There was magic in the name Monahan. There was a certain charm about the vicinity of the doctor's office. And, his business grew.

Soon it was whispered the growth of the new enterprise necessitated its removal to a nearby city, but it was with a gasp that the village banker beheld the written order transferring the account of his largest depositor to the big city bank.

Dr. Monahan's business grew fast. In fact, it grew so fast that it had to be transferred again; this time to a city some hundred miles away. When Mrs. Monahan drew her next check it came back with the notation on an accompanying slip, "account checked out." So, Mrs. Monahan, having her own private bank account, gave up her house in the village and retired to a piece of land, the conditions in the deed having prevented it being disposed of by her adventurous husband.

When Dr. Monahan left our village with his wife's money he left a paper bearing his signature for \$500. It was his note given in relation to an automobile deal.

Having acquired the reputation of being able to get the attention of the very "hardest

boiled" collector of the most flinty of bad accounts this note was handed to me for collection. I made an agreement with the holder of this note. I was to have papers in the case consisting of all that was known of the present whereabouts of the fugitive doctor as well as the name of the town in which he was last seen.

It appeared that the last seen of our hero (oh, how the mighty had fallen!) he was selling rat and roach paste in a city department store, captivating crowds with his eloquence and dazzling them with a huge diamond ring.

I wrote letters. I wrote more letters. Whoever had seen him since he had left our town received beseeching, imploring, many-angled letters from me, seeking information. Some of the dust stirred in unused post office boxes must have been noted. Out from nowhere in particular came a clipping from a daily paper in a distant city. It read: "Mexican Mine Sold. Dr. Walter Monahan has sold his famous mine for (\$1,500,000.00) One Million Five Hundred Thousand Dollars. The doctor says "Cash sale, too".

Gee, wasn't that a find? The doctor was not only "growing"; he was *grown* and he had grown BIG while he was about it. It would be but the merest small change for Dr. Monahan to pay the note. Why, it would almost insult this great (?) man to ask him for it. This was the way I felt in my first transport of joy—but, I hadn't found the doctor yet.

The clipping was from a paper published in a town of over 100,000 population, more than 400 miles from our village. I at once wrote the publication, enclosing stamp for reply. No answer. I then wrote the city editor of a rival newspaper published in the same city. In this letter I asked the names of the news gatherers and the city editor. I then wrote each of the reporters a guarded letter asking as to particulars of the mine sale, and to whom I might apply for information. One of the reporters replied, giving me a great deal of valuable information. He said that Dr. Monahan was a practicing physician and a good one. He told me that the doctor was located in a little town in the south edge of the county in which the city daily was published. I had considerable correspondence with him.

He gave me names of people who knew Dr. Monahan before he came to our town. Believing that Dr. Monahan was a slippery customer I resolved to know as much of his previous history as possible before going farther.

I began delving about, trying to find out what school of medicine had turned the doctor out. I was much surprised to learn that his name did not appear among those authorized to practice medicine in our state. It also appeared that while down in our section, the Doctor had given his birthplace as Gentry County; and at his recent practicing place he had registered his birthplace as Cooper County. To an acquaintance he had stated that, while absent in our country, he was really in Mexico. He had stated that he had been head doctor to his excellency, the President of the Republic. It began to dawn on me then that I was on the trail of a really great (?) man. It occurred to me then that I had enough information for the present.

I then wrote Dr. Monahan, recounting to him that he had come to our town a stranger and had been furnished credit and otherwise well treated. I gave him the amount of his indebtedness, ending with an appeal to him to pay what was justly due, with interest.

In about three weeks I received a letter bearing a foreign postage stamp. It was from the capital of a state in Central America. It was from Dr. Monahan and contained the information that he didn't have the amount by him but, when he "got on his feet", he would pay what he owed.

I immediately got in touch with some bankers at Canby with whom I had had some correspondence. They wrote me that Dr. Monahan had been there all the time; that he had doctored enough to purchase an old car and was running about the country trying to borrow money.

I thought then that it was best to give the doctor a "degree" (it was doubtful if he had had a degree in medicine), so I wrote him substantially as follows:

"Dear Doctor Monahan:

"I have just received your letter, written at Canby and addressed to me from Guatemala, Central America, and allow me to say that I am more than convulsed at your jokes.

"Your marriage to Mrs. Werner; your sale of the Mexican mine ('cash sale, too'); your birth registration in two counties; your registry under certificate number 262 (Where did you get it?)—these acts declare

you a humorist of the very highest order. The magazines are fairly screaming for your brand of genius.

"However, supposing that your other acts were humorous, I must stop at that. Your note for \$500 is hardly humorous. My dear doctor, it may turn out quite the reverse for you.

"I am giving you ten days in which to settle this matter. Not receiving a reply, with enclosed remittance, you will be notified as to further steps to be taken".

The response to this letter was immediate. Two men here, former associates of the doctor, received telegrams asking who I was. The doctor himself was badly disturbed. He immediately made a run to the nearest city. From there I received a letter from him declaring:

"You are either the smartest man this state ever produced or you are a fit candidate for the lunatic asylum. You have been writing all over to find out about me. I will say that I am here at all times. This looks like blackmail to me."

I then wrote the doctor (he gave general delivery as his address), that, as I had no notes out, my character was not being questioned. I told him that I expected to keep on making inquiries about him until I got the payment.

The doctor was seen a few times at Canby, where he went for his effects, but he left there promptly and has not practiced medicine in the state since. The penalty for practicing medicine in this state without a license or using a false registration number is said to be \$500 fine, or six months imprisonment, or both, at the discretion of the court. But I never got the money. The doctor was said to be broke.

E. H. ARMSTRONG,

Pleasanton, Texas.

OFF HOURS

One winter night, when the ground was covered with sleet, and the rain was freezing as it fell, the old doctor received a very late call from a family living way on the other side of the city. It was after one o'clock when he left home, and his horse—this was in the old days—slid all the way to the patient's house.

He got there about three o'clock, and found that a girl in the household had a severe cold. It was nothing dangerous.

"How long has she had it?" asked the doctor.

"Three days," answered the mother.

"Why didn't you call me in the daytime?" asked the doctor.

Then came the answer, which made this the favorite story of the Medical Society for many, many years:

"We are poor people, and we aren't able to pay very much, so we thought we would call you when you weren't busy."

—*Pharmaceutical Advance*

NO HURRY

The telephone bell rang with anxious persistence. The doctor answered the call.

"Yes?" he said.

"Oh, doctor," said a worried voice, "something has happened to my wife. Her mouth seems set and she can't say a word."

"Perhaps she has lockjaw?" said the medical man.

"Do you think so? Well, if you are around this way some time next week, I wish you would look in and see what you can do for her."

—*Pharmaceutical Advance.*

A MORNING CREED

When you wake in the morning you wash your body. Why don't you wash your mind? You breakfast, putting food in your body to give you strength for the day. Why don't you give your soul its breakfast?

Therefore learn this creed, better it if you can, and say it as your day begins:

1.—I want this day to be a cheerful and successful one, so that I may come to my resting-bed tonight glad and satisfied. To accomplish this I will plan my day intelligently.

2.—As I know that happiness depends on my will and attitude of mind and not on events I will adjust myself to what happens.

3.—I will not worry. If a thing can be

helped, I will help it; if not, I will make the best of it.

4.—I will keep all mental poisons out of my thought. I will especially resist and exclude fear which weakens and unnerves me.

5.—I will not allow myself to become angry.

6.—I will resist pride.

7.—I will try to affect pleasantly everyone with whom I am thrown in contact. I will try to make happiness as well as receive it.

8.—I will believe in myself. I will allow nothing to make me doubt myself nor to create in me discouragement or despair.

9.—I will not let myself despise any human being, and I will keep all contemptuous and condemnatory thoughts of anybody out of my mind; neither will I speak derogatory words.

10.—I will keep my whole self in tune with positive and healthful optimistic forces.

11.—I will make my enforced intimacies as pleasant as possible. I will get along without friction or bickering, or strained relations with my family, my neighbors and business associations.

12.—I will plan for at least a half hour's quiet, for reflection and for cultivation of my own spirit.

13.—I will be more honest, square and prompt than business demands; more thoughtful than love requires.

14.—I will do somebody a good turn that is not expected of me.

15.—If any person does me wrong, I will not bear him a grudge. I will try to forget it.

16.—I will enjoy as heartily as I can what the day brings me, and all the pleasure possible of eating, drinking, resting, amusement, and the people I meet, so that at night I may be able to say, I have lived and found life good today.

E. S.

Thumbnail Therapeutics

ANTITOXIN IN SCARLATINA

Antitoxin is useless after the scarlatinal rash has disappeared and has no effect on the later septic conditions.

In moderate cases give it intramuscularly; in severe cases, intravenously. One *sufficient* dose is usually enough, but in severe cases, it may be repeated in 12 to 24 hours.—DR. PARK, in *J. A. M. A.*

ECZEMA

In treating eczema our main objects are to protect the parts from irritation, soothe the inflammation and relieve the itching. The simpler the prescriptions the better. Lotions are frequently better than ointments. Ultraviolet rays, x-rays and high-frequency treatments are helpful in many cases.—DR. J. L. CHURCH, of Chicago.

PREVENTING DISEASE

Vacations end, schools begin, furnace fires are lighted, windows go down and contagious disease prevalence starts to rise almost simultaneously. There must be some relation between these events. At any rate plenty of fresh air and sunshine with neither too little play nor too much work never hurt anybody.—DR. ISAAC D. RAWLINGS, of Springfield, Ill.

PERIURETHRAL ABSCESS

Do not continue to put fomentations on a periurethral abscess. Open as soon as fluctuation is determined.—*Urol & Cutan. Rev.*

CARBON TETRACHLORIDE AND ALCOHOL

When treating hookworm in an alcoholic, use oil of chenopodium alone, as the danger of poisoning with carbon tetrachloride is increased by the taking of alcohol.—*International Health Board.*

DEXTROSE AND INSULIN IN ECLAMPSIA

Excellent results follow the use of glucose (dextrose) and insulin in the toxemias of pregnancy. The glucose is best given intravenously, in 5-percent solution, though it may be used by rectum or by hypodermoclysis. Insulin, 1 unit to each 3 Grams

of glucose, is given subcutaneously, up to 10 or 15 units.—DR. C. JEFF MILLER, in *A.J. Obst. & Gynec.*

TETANUS

For the painful spasms of tetanus, 30 grains of chloral every four hours is useful and superior to morphine; bromides are of little value. If the patient is unable to swallow, 1/100 grain of hyoscine hydrobromide may be given hypodermically.—DR. C. WORSTER-DROUGHT, in the *Lancet.*

OXYGEN INSUFFLATION IN TUBERCULOUS PERITONITIS

The treatment of that form of tuberculous peritonitis which is associated with ascites, by abdominal puncture followed by insufflation with oxygen, is a well recognized and beneficial form of therapy. It should be undertaken in preference to the usually advised laparotomy.—A. L. GARBAT. *J. A. M. A.*

PERTUSSIS

In pertussis there occurs an uncompensated acidosis which is intimately connected with the pathogenesis of the paroxysms. If the acid-base unbalance is corrected, the clinical symptoms are quickly ameliorated and the organism returns to normal.—JOS. C. REGAN, *J. A. M. A.*

ROUGHAGE IN THE DIET

Those people who have overloaded their digestive system for years and in whom the colon is consequently somewhat feeble and atonic, are the ones who receive benefit from a diet giving considerable roughage as residue.—DRS. M. L. and G. GRAVES, in *Southern M. J.*

ACNE

Acne vulgaris is common in both sexes at the time of puberty and is often associated with adherent prepuce, masturbation or other causes of genital irritation. Intestinal autointoxication is present in most cases.

Determine the causes—including bad habits—and correct them *all*. This, with *effective* doses of calcium sulphide will cure the worst cases.

Local treatment of the pustules by puncture and antiseptics may be helpful. Fluid extract of berberis, 10 to 30 minims three times a day, has been recommended.—*Medical World*, April, 1926.

OVERCONFIDENCE IN PHYSICAL THERAPY

Do not depend upon physical therapy as your sole therapeutic resource. Make thorough and careful diagnoses. Correct surgical conditions. Eliminate foci of infection. Use every measure, including physical therapy, for the relief of your patients.—DR. W. B. WALLACE.

TUBERCULOSIS OF THE MALE GENITALS

Tuberculosis of the prostate and seminal vesicles usually heals spontaneously and early surgery is contraindicated. Tuberculosis of the epididymis does not become dormant and disappear, and should be treated surgically.—DR. JOSEPH WELFELD, in *Bul. Municip. Tuberc. San. of Chicago*.

HICCUP

Two remedies recommended for the relief of hiccup are to produce sneezing by tickling and to produce emesis.—*Pharmacol Advance*.

PYROGALLIC ACID IN SYPHILITIC ULCERS

Remove undermined edges of syphilitic ulcers and protect the surrounding tissues with a zinc paste; then apply pyrogallol in a 2-percent ointment for two days; then 10-percent for two days; 20-percent for two days; and 30-percent for eight days. Watch the urine. (If it turns dark the dosage absorbed is too large. Reduce or stop.)—DRS. BUSCHKA and LEISSNER, in *J. A. M. A.*

HEADACHE

In headache of inexplicable origin, think of the possibility of syphilis and use specific treatment even though the laboratory returns a negative report on the patient's blood.—*Urol. & Cutan. Rev.*

ARSPHENAMINE AND SODIUM IODIDE

Good results follow the intravenous injection of 30 grains of sodium iodide in 15 cc. of sterile water (best in ampules) in addition to arspenamine in the treatment of primary syphilis.

Arsphenamine injections may be given every other day if they are alternated with

injections of sodium thiosulphate to avoid the danger of retention and arsenical dermatitis.—DR. GOODMAN, in *Med. Times*.

INSULIN IN INFANT FEEDING

Some infants who are difficult feeders and who fail to gain on the ordinary forms of treatment are much benefited by injecting insulin in the proportion of 1 unit to each 15 Grams of carbohydrate in the diet.—DRS. GREEN AND ROBBINS, in *Bost. M. & S. J.*

X-RAYS IN HYPERTHYROIDISM

From 60 to 70 percent of patients with hyperthyroidism can be restored to a useful and moderately active life, and 20 to 30 percent more greatly benefited in health, by the careful and well-considered use of x-rays.—DR. A. E. BARCLAY AND F. M. FELLOWS, in the *Lancet*.

PITUITARY EXTRACT BY MOUTH

When pituitary extract is administered in any portion of the alimentary canal, no pressor effect is produced; but when it is given by mouth or rectum it produces, after a few minutes, a marked action on the uterine muscle.—DR. H. H. KNAUS, in *Brit. M. J.*

BERBERINE IN MORPHINISM

The action of berberine is successful and rapid in the treatment of morphinomania.—DR. BRISSE-MOREY, in *J. Pharm. Chem.*

LEVOROTATORY HYOSCINE

There are two optical forms of hyoscine, dextro- and levorotatory. As the dextro-hyoscine is practically inert, the physician must assure himself that the levulo-hyoscine is being dispensed on his prescriptions if he expects to get results.—Editorial in *Therap. Gaz.*

SALT IN NEPHROSIS

In nephrosis a salt-free diet is a fundamental measure of treatment.—DR. GUSTAV KOLISCHER, of Chicago.

ETHYLENE ANESTHESIA

Ethylene anesthesia is indicated in all minor surgery where complete relaxation is not needed, especially in weak patients and poor surgical risks, as there is little reaction and no after effects. It is contraindicated whenever a cautory or any electric apparatus is to be used. It frequently fails in the presence of acute peritonitis and in gall-bladder surgery. In many cases ethylene-

oxygen may be profitably combined with morphine (with or without hyoscine or magnesium sulphate) and with ether. Anesthesia may be induced with nitrous oxide and followed with ethylene.—DR. JOHN S. LUNDY, of the Mayo Clinic.

"TAKE A TEASPOONFUL"

It is generally understood that a "teaspoonful" is equivalent to 4 cc. Personal test proves, however, that the ordinary teaspoon, filled as in taking medicine, contains 5.5 to 6.0 cc. of fluid; and, if filled as full as it will hold, 8 cc. It is well to remember this when giving directions as to dosage.—DR. HERMANN HILLE, of Chicago.

HOOKWORM AND ROUNDWORM

In countries where hookworm and ascaris lumbricoides are both common, give a combination of 3 parts of carbon tetrachloride with 1 part of oil of chenopodium in a solution of magnesium sulphate. One dose will usually do all the work.—DR. SWEET, in *Ceylon J. of Sc.*

SODIUM SALICYLATE INJECTIONS IN VARICOSE VEINS

Varicose veins can usually be occluded by injecting sodium salicylate into them. First injection, 2 cc. of a 20-percent solution; second injection (2 or 3 days later), 2 or 3 cc. of a 30- or 40-percent solution. Never exceed 5 or 6 cc. This may be repeated after several weeks, if necessary. *Contraindications:* Cardiac insufficiency, hypertension, kidney disease, history of phlebitis, uterine fibroma and pregnancy.—DRS. SICARD and GAUGIE in *Presse Médicale*.

PITUITARY EXTRACT IN DIABETES INSIPIDUS

A patient with diabetes insipidus has received hypodermic injections of 1 cc. of pituitary extract every day for several months, with a reduction of his urinary output from 26 pints to 2 pints in 24 hours. Endocrine extracts are not cumulative and the dose need not be increased.—DR. E. OBERMER, in *Brit. M. J.*

PITUITARY EXTRACT AS A PURGATIVE

Patients who are receiving considerable doses of morphine develop an intractable constipation which does not yield to ordinary remedies. A hypodermic injection of 1 cc. of pituitary extract causes a prompt and thorough evacuation of the bowels within ten minutes. This effect has been noted in other cases. The dose does not have to be increased if used repeatedly.—DR. E. OBERMER, in *Brit. M. J.*

CAUSE AND TREATMENT OF MUMPS

A spirochete has been isolated from the mouth, which causes symptoms of mumps in monkeys. On this basis the treatment should be by the arsphenamines, intravenously, or acetarsone or treparsol by mouth.—DR. Y. KERMORGANT, in *Ann. de l'Inst. Pasteur*.

BOILED MILK IN PELVIC INFECTIONS

In the treatment of pelvic infections, especially gonorrheal involvement of the fallopian tubes, pelvic peritonitis, and febrile abortion, nonspecific protein treatment frequently gives better results than those of surgery. Fat-free, sterile milk, furnished in ampules is preferable to whole milk boiled or autoclaved extemporaneously.—DR. HARRY PIKE, in *M. J. & Rec.*

ANESTHESIA IN THE TROPICS

In the tropics and other localities where the sun is very bright, the absorption of chloroform and ether is extremely rapid and there is danger of overdosage unless great care is used.—DR. R. MURRAY BARROW, in *Brit. M. J.*

ULTRAVIOLET RAYS IN ASTHMA

Many cases of asthma, especially those occurring in connection with hayfever, are markedly benefited by general irradiations with the air-cooled, mercury-quartz lamp. Vaccines, radiant light, diathermy and other measures should also be used, as indicated.—DR. G. J. WARNSHUIS, of Milton, Wis.

Current Medical Literature

RENAL FUNCTION TESTS IN GENERAL PRACTICE

There are a number of tests of kidney function which are applicable to hospital practice but which cannot be used successfully by the average practitioner because of the more or less complicated technic required.

In the *M. J. & Rec.* for June 2, 1926, Dr. H. Leon Jameson, of Philadelphia, describes several renal function tests which are easy to apply and can be used anywhere. These are largely based upon a determination of the ability of the normal kidneys to concentrate and dilute the urine. If the urinary flow, and especially the specific gravity, do not vary materially at different times of day and under varying intake of water, renal involvement is almost certain, particularly if the specific gravity is persistently low.

For the *Mosenthal test* the bladder is emptied at 8 A.M. and the urine collected in separate bottles, properly labeled, every two hours until 8 P.M. All urine voided between 8 P.M. and 8 A.M. is collected in one specimen. The night urine should be less than the amount passed during the day and should not exceed 750 cc., nor have a specific gravity less than 1020. The specific gravity of the several day specimens should vary considerably (up to 9 or 10 points). Increase in the amount of night urine and fixation of the specific gravity at a low point strongly suggests nephritis.

For the *concentration-diuresis test* the patient abstains from food and water after the evening meal and empties the bladder completely at 6 or 7 A.M., after which he continues fasting and without water for exactly three (3) hours and then voids again and saves the specimen. Immediately after this second voiding he drinks 2½ liters (quarts) of water during 1½ hours and collects all urine passed during the second three-hour period. The specific gravity of these two specimens should be tested carefully at room temperature.

Normally, the "concentration" specimen shows a volume of 50 to 200 cc., and a specific gravity exceeding 1021; while the "diuresis" specimen exceeds 1000 cc.—usually 1,500 cc. or more—with a specific gravity of 1003 or less. Good kidneys with a poor heart will concentrate the urine normally, but "diurese" it very poorly.

ACTINOTHERAPY AND THE ENDOCRINES

That world-famous authority on the ductless glands, Dr. Charles E. deM. Sajous, has turned his scholarly mind upon the question of the relationship between the

various radiant energies and the endocrines and illuminates the subject in an article in the *M. J. & Rec.* for September 15, 1926.

In this article he shows that Nature's method of combating infection is by fever, which results from excessive activity of the adrenals, liberating adrenoxin, lecithin and cholesterol. The thyroid also becomes involved in these complicated processes.

Dr. Sajous believes that the beneficial effects of all forms of heat and light therapy, including, to a certain extent, x-rays, is due chiefly to the fact that they simulate the action of the endocrines by producing an artificial fever which, like the "natural" fever, is beneficial up to a certain point but may be carried too far if great care is not exercised.

TREATMENT OF INFANTILE TETANY

In the *J.A.M.A.* for Dec. 4, 1926, Drs. John P. Scott, of Philadelphia, and Saul J. Usher, of Montreal, report their observations in 21 cases of infantile tetany.

Of these cases, none began before the age of 2 months nor after 14 months; generalized spasms were present in all cases; Chvostek's sign (sudden spasm on tapping one side of the face) occurred in 15 cases; laryngospasm in 9; Trousseau's sign in 6; and carpopedal spasm in 4. A large majority of the cases showed a blood calcium figure below 9 mg. per hundred cubic centimeters (this is the low normal figure).

For relieving the convulsions, *Calcium Chloride*, 15 grains (1 G.) every 3 hours, by mouth, is most effective; with *Ammonium Chloride*, 7 grains (0.5 G.) three times a day, by mouth, taking second place. Relief continued during administration of the drugs.

By giving these salts the blood calcium was slowly raised in all but two cases, but this result was much more rapidly achieved by giving daily irradiations for 3½ minutes with a mercury vapor quartz lamp. In one case the ultraviolet treatment raised the blood calcium from 6.8 to 9.9 in six days, without other treatment.

TREATMENT OF URINARY INFECTIONS WITH THE BACTERIOPHAGE

In *La Presse medicale* for May, 1926, Dr. A. Ravina reports encouraging results following the use of d'Herelle's bacteriophage in severe urinary infections.

He administered 2 to 3 cc. of cultures of specific bacteriophages, subcutaneously and intravesically, in 17 cases of *B. Coli* infections, 10 of whom showed cure or marked improvement.

Staphylococic infections show even better results, 6 out of 9 favorable cases of

such infections having been cured, clinically and bacteriologically, by the use of a specific bacteriophage.

This treatment seems to be especially valuable in pyelonephritis during pregnancy and in chronic *B. Coli* infections. It is *contraindicated* in uropyonephrosis, perinephritic phlegmon and in urinary tuberculosis.

Other diseases, such as anthrax, furunculosis, phlegmons, osteomyelitis, etc., have been cured or benefited by bacteriophagic treatment.

INDOOR AND OUTDOOR ALLERGENS

Dr. W. Storm van Leeuwen seems to have demonstrated that there are two types of allergic substances causing asthma and other anaphylactic syndromes; one found only in houses—the products of the metabolism of bacteria, parasites or mould fungi—and the other found in the outside air. His work is reported in *Munchen. med. Wchnschr.* for April 9, 1926.

These findings explain why some asthmatics improve at once upon removal from their homes to hospitals where the surroundings are relatively aseptic.

The author recommends the use of non-allergic chambers in which the patient is to sleep. The air in these chambers is washed and the furniture is frequently sterilized.

ULTRAVIOLET RAYS AND VITAMINES

In *Ztschr. f. Kinderheilkunde* for February, 1926, Dr. Herman Vollmer reports the cases of twin sisters who were raised under identical conditions up to the age of 26 months, at which time they entered the clinic, both being markedly rachitic.

They were placed in the same room and given a diet poor in vitamins, plus ultraviolet irradiations combined with eosin sensitization (1.0 Gram of bluish eosin daily).

After 17 days the raying of one child was stopped and she was given a diet rich in vitamins: The other continued to receive the rayings and the vitamin-poor diet. Both children continued to improve, but the one who received the ultraviolet treatments progressed more rapidly.

Roentgenograms showed beginning calcification of the bones within a week after the raying was commenced. Healing is more rapid with the use of ultraviolet alone than with vitamins alone, and the rays seem to be necessary to start the healing process.

TARTAR EMETIC INTRAVENOUSLY IN PHAGEDENIC GENITAL ULCERS

Several observers have reported excellent results from intravenous injections of antimony and potassium tartrate in cases of granuloma inguinale, and Goodman has reported his experience in treating chancroids with it. This use of the drug is based upon

the close chemical relation between antimony and arsenic.

In the *J.A.M.A.* for December 4, 1926, Drs. Jerome Kingsbury and Samuel L. Peck, of New York, found, in the course of some of their studies, that intravenous injections of antimony and potassium tartrate were frequently followed by prompt healing of simple chancroids and deep, phagedenic ulcerations of the genitalia. It seems to be not only germicidal but to stimulate repair of the tissues.

The drug is given in a 1-percent solution, and had best be procured in 5 and 10 cc. ampules, except for extensive hospital work. The solutions should never be boiled.

The initial dose should be 3 cc., repeated 3 or 4 times a week, increasing each dose by 1 cc. until 10 cc. is given at a dose. These should be continued until healing is complete. The fluid should be introduced into the vein very slowly, in order to minimize reactions, evidenced by coughing, salivation or vomiting. When these occur the dosage should be reduced and then increased more gradually.

Three interesting cases are reported *in extenso*, in which severe, sloughing ulcers, complicated by phimosis and other conditions and in which usual treatment had entirely failed, healed promptly following from 8 to 12 intravenous injections of tartar emetic.

The authors feel that a new procedure like this should be used only after recognized measures have failed. They do not recommend it for simple chancroids, but believe that its use is indicated in the severe, phagedenic varieties.

LUETISM

Drs. Eugene Hertoghe, of Antwerp, and William Seaman Bainbridge, of New York, in an article in the *Franco-British Med. Rev.* for January, 1925, made some interesting suggestions relative to a possible attenuated form of syphilis which may well give rise to serious thought and may outline a method of treatment in a number of difficult and obscure cases.

They believe that there is cumulative evidence to show that (1) there is an attenuated form of syphilis, possibly so modified by passing through several generations as to prove nonreactive to the Wassermann test. (2) This type of syphilis is an important underlying factor in numerous doubtful cases, particularly in some of the ulcerative cases of the gastrointestinal tract, and occasionally in other conditions which exhibit elements of a somatic toxic state. (3) Since the Wassermann test is variable in cases with gross syphilitic lesions, it is logical to assume that it will show far greater modifications in its reactions to an attenuated form of syphilis, the thinned out type which the authors term luetism. (4) The favorable results obtained from iodine medication in goiter, and from bismuth medication in gastrointestinal conditions, point to an antiluetic effect of these drugs on a possible underlying factor of luetism. (5) Intensive research might be

instituted to discover a test to take the place of the Wassermann. This new test should be so sensitive that it will react to the possible variable types of the spirocheta in the hypothetical gap between our present-day negative and this greatly modified type of syphilis.

SERUMS FOR SNAKE BITE

Some tropical countries, particularly Brazil, where venomous snakes abound are now being supplied with specific serums to counteract these poisons, and the United States is now to have a similar service, as outlined by Raymond L. Ditmars in the *Bul. N. Y. Zoological Soc.* for July-August, 1926.

Dr. Afranio do Amaral, former chief of the anti-venom serum institute at Sao Paulo, Brazil, came to the United States, recently, to take up studies at Harvard, and is now formally associated with the university's work in presenting courses of lectures on ophiology.

He brought details of an important co-operative agreement between the Institute for Tropical Biology and Medicine of Harvard University, the United Fruit Company, and the Mulford Laboratories at Glenolden, Pennsylvania, to produce specific anti-venomous serums in the United States.

For the United States, this new development means much. Owing to broad increase of hiking, camping, and automobile camping, the death rate from snake bites has been steadily increasing and, from careful investigations by the writer, appear now to average over a hundred a year. Owing to forest conservation in parts, there is a definitely indicated increase of venomous reptiles. An assured distribution to many points of hazard will relieve much fear and save a number of lives. Serums for the United States and the tropics will be prepared by immunization with the specific venoms of the snakes found in these respective regions.

PHYSICAL THERAPY AND ORTHOPEDICS

Dr. F. H. Ewerhardt, of St. Louis, feels that we are inclined, when we speak of physical therapy, to refer solely or chiefly to electro- and helio-therapy and, in an article in the *Am. J. of Phys. Therap.* for October, 1926, he deprecates this practice and emphasizes the value of hydrotherapy, massage and exercise, as well as of the other physical agencies, as an adjunct to orthopedic surgery.

In fractures Dr. Ewerhardt applies heat, in the form of diathermy or radiant heat-light, followed by the gentlest forms of massage (stroking effleurage) to relieve pain, swelling and spasm. As soon as union is firm he begins selective exercises. For sprains and dislocations he employs the whirlpool and contrast baths, with radiant heat-light, diathermy and massage, reinforcing the ligaments of the joints with lateral strips of adhesive plaster. This is also the basis of the treatment of arthritis,

though he also uses galvanism and ionization in appropriate cases.

In flaccid paralysis and other conditions involving muscular atrophy, the sinusoidal current may well be added to the other measures which seem to be indicated; while in cases where muscular spasm is a feature, such as sacroiliac subluxations, the various heat-producing agencies are a valuable addition to any orthopedic or other treatment which may be used.

Physical therapy has proved its value, but we should not limit the field nor encourage its use by non-medical persons.

X-RAYS AND INTRAVENOUS INJECTIONS OF DEXTROSE IN TREATING CANCER

Dr. E. G. Mayer has discovered that the effect of irradiation of nonmalignant and malignant tumors is much increased if it is preceded and followed by intravenous injections of glucose (dextrose), as reported by Dr. G. Holzknecht, of Vienna, in the *Brit. M. J.* for April 3, 1926.

The substance used is a 30-percent solution of dextrose, which must be pure and free from albumin. Of this solution 10 cc. are injected intravenously shortly before each use of the x-rays, which are employed in the usual manner.

The x-rays alone give fairly good results in sarcoma (30 percent of cases show prompt diminution of the tumor and prolongation of life); but with carcinomas the favorable results are delayed for several weeks and are irregular and unsatisfactory. If the dextrose injections are used in connection with the x-rays, carcinomas appear to behave more like sarcomas, the good results appearing in a few days and proceeding rapidly.

There is no question of a cure by this method, but it promises to be more effective than x-rays used alone and to be of great service in many distressing cases not heretofore amenable to this form of treatment.

CALCIUM LACTATE AND BLOOD CALCIUM

The statement has been frequently made that the oral administration of calcium salts by mouth produces little alteration in the calcium content of the blood, but Drs. Walter Bauer and Marian W. Ropes, of Boston, report otherwise in the *J. A. M. A.* for December 4, 1926.

After a careful and detailed study of the subject, these workers conclude that:

1.—Calcium lactate administered in 5 Gm. doses to nine normal subjects gave a maximal elevation of 14 percent of the serum calcium. This maximal rise comes between the first and fourth hours after ingestion, but some elevation is usually maintained over a period of more than twelve hours.

2.—Calcium lactate given in 10 Gm. doses in eight normal subjects produced a similar, but more pronounced, increase in serum calcium, the maximal rise being 28 percent,

and occurring between the first and fifth hour. Again, some elevation was maintained above the fasting level for a period of twelve hours.

ULTRAVIOLET AND OTHER RAYS

The *Brit. J. of Actinotherapy* cautions against limiting our work to the use of ultraviolet irradiations, and points out that the radiant energies begin with heat

and extend through the field of infrared rays, ordinary light, ultraviolet and the x-rays and up to the gamma rays of radium. Great advantages frequently arise from alternating or combining various types of irradiations.

We should not lose sight of the fact that actinotherapy in all its forms frequently reinforces the effect of certain drugs to a marked degree and we should be on the alert to utilize such synergistic actions to the greatest possible extent.

Save for a Purpose

"Money is the result of labor.

"It has but little value in itself.

"It gets its value from what you can get with it.

"You are saving for a purpose.

"You may save to buy some useful article.

"You may save for an education.

"You may save to be ready for an opportunity that may come to you.

"It is not often that a man can make opportunities for himself. But he can put himself in such a shape that when, or if, opportunity comes, he is ready to take advantage of it."

—Theodore Roosevelt.

New Books

SUDHOFF-GARRISON: HISTORY OF MEDICINE

ESSAYS IN THE HISTORY OF MEDICINE. By Karl Sudhoff, M.D., Professor of History of Medicine in the University of Leipzig, 1895-1924. Translated by various hands and edited, with foreword and biographical sketch, by Fielding H. Garrison, M.D., Lieutenant Colonel, Medical Corps, U. S. Army. New York: Medical Life Press. 1926. Price \$5.00.

This work is a collection of the medical historical essays of Karl Sudhoff (rated by many as the greatest of medical historians), translated by a number of men and edited by Colonel Garrison.

A biographical sketch of Sudhoff, by Dr. Garrison, opens the volume, and then follow the adequate translations of these fascinating essays, some long and some short, covering all sorts of subjects, from prehistoric times to the present day—men, abstract considerations, strange medical practices of remote lands and times—all touched into life by a master hand, so that they hold the reader like an exciting novel.

The editor says that medical history is the best school of medical ethics. Truly, if we know more about our profession, we should ornament it the more.

We have never seen a book just like this one and we heartily recommend it to our readers. The charm has been well preserved in the translation and all who study this volume will find joy as well as wholesome instruction.

BERNHARD: LIGHT TREATMENT IN SURGERY

LIGHT TREATMENT IN SURGERY. By Dr. O. Bernhard-St. Moritz. Translated by R. King Brown, B.A., M.D., D.P.H. London: Edward Arnold and Co. 1926. Price \$7.50.

The splendid, almost miraculous cures brought about by the eminent author in his small but famous sanitarium in Switzerland, in all sorts of tuberculous lesions, especially of those surgical in character, must stimulate any practicing physician and surgeon to familiarize himself with this work, presented as an unabridged translation.

It is not a large book, but one filled with information which keeps the interested reader spellbound and shows the *raison d'être* for modern heliotherapy, even though we are compelled to fall back on lamps as substitutes for the mountain sun, which the author utilizes throughout the year.

Bernhard does not waste any words on the apparatus and technic, for both are so simple that the necessary information can be had in one hour, but furnishes such an

abundance of clinical material that, properly grouped, the cases teach more than many pages of dry text.

Acknowledged as a leader and pathfinder in heliotherapy, the author comes to us in this simple book for home study, affording us, to a limited extent, the privilege which has been accorded earnest seekers after truth, who traveled far to the master's workshop to learn from him how to wrest from nature the means to cure surgical and general tuberculosis by nonoperative and highly successful methods.

G. M. B.

CRILE: BIPOLAR THEORY OF LIFE

A BIPOLAR THEORY OF LIVING PROCESSES. By George W. Crile. Edited by Amy F. Rowland. New York: The Macmillan Company. 1926. Price \$5.00.

This book is an outstanding monument of patient research on a most important, as well as difficult, though intensely interesting subject.

One's interest is sustained throughout by the clear, logical presentation of experimental facts and the deductions therefrom, the result of nearly one-third of a century of research by one of America's most distinguished surgeons. Although it is definitely stated that the conclusions have not been finally proven, the theory as here presented is decidedly logical and commands serious consideration.

After painstaking experiment, the theory is advanced that man and animals are bipolar mechanisms, called into existence, constructed and driven by electrical forces.

Surgical shock, the study of which originally engaged the author, is shown not to be due to primary changes in the cardiovascular and respiratory systems. This led to the practical application of nerve-blocking in the prevention of surgical shock, for which the author has become justly famous.

As a result of cytological observations, the cell is considered to be surrounded by an extremely thin, dielectric membrane and the nucleus, relatively acid, contains a positive charge, the cytoplasm, relatively alkaline, contains a negative charge. Therefore, the cell is an electrical cell in which the maintaining of the acid-alkali balance (electric potential) is essential to life.

Lethal influences affect the liver and brain most readily. The liver is considered the negative and the brain the positive pole. Any failure of liver function impairs the circuit and the cells no longer receive their proper dynamic discharges upon which life depends. Cancer, fever, memory, etc., are exhaustively considered from a bipolar interpretation.

The subject matter is arranged in a most practical manner and the book is of excep-

tional readability and interest, aside from its great scientific value. Notwithstanding the highly technical nature of many investigations, they are so presented that the average physician may read them understandingly and acquire a goodly fund of highly essential knowledge.

Experimental data, literature, citations, etc., are combined in the last one-third of the volume and are added as an appendix. Every practicing physician and especially every surgeon should possess and study this volume.

J. F. B.

KEPHART: CAMP COOKERY

CAMP COOKERY. By Horace Kephart, *Author of Camping and Woodcraft, The Hunting Rifle, etc. Illustrated with pen drawings of camp utensils, outfits, etc.* New York: The Macmillan Company. 1926. Price \$1.00.

Every man who enjoys the rough life of the camp (and their name is legion), even old, seasoned woodsmen, will find valuable material in this little book.

Camp cookery is an art distinct from the cuisine of kitchens and an ordinary cookbook is of no use in the woods.

The less a man carries in his pack, the more he must carry in his head; and the simpler the outfit, the more skill it takes to manage it and the more fun it is.

There are chapters on provisions, with lists of what will be required and the best form for camp use; utensils, showing everything needed for camp cookery; the building of fires under different circumstances and for various kinds of cooking; and dressing game. The several types of foodstuffs are considered separately.

The index in the back lists the subjects alphabetically. In the front is a table classifying the dishes as "quick (under twenty-five minutes)", "medium (twenty-five to forty-five minutes)" and "slow (over forty-five minutes)". This should be very helpful in planning meals.

The book is practical throughout and shows ample evidence of having been written by a man who knows the woods and hills and the problems they present to a cook.

Recommend to every doctor in the country—if they are not woodsmen they ought to be. Anyway, you can get it for your boy.

FANO: PHYSIOLOGY

BRAIN AND HEART. Lectures on Physiology. By Giulio Fano, of the Royal University of Rome. Translated by Helen Ingleby. With a Foreword by Prof. E. H. Starling, C.M. G., M.D., D.Sc., F.R.S., University College, London. London and New York: Humphrey Milford, Oxford University Press. 1926. Price \$2.75.

This small volume embodies a series of lectures delivered by the celebrated Italian physiologist, Prof. Fano, in which the heart and brain were used to illustrate certain

fundamental problems of physiology and physiologic research.

The lectures constitute almost an autobiography, covering certain periods of Fano's life, and showing how and why he embarked upon certain lines of investigation. Being so personal, they contain many statements of individual opinion which are not yet generally accepted, but that very fact tends to enhance the flavor of the *man himself* which one gains from a book of this sort.

He deals particularly with such fascinating subjects as: Living Matter; Inhibition and Will; Excitability and Automatism; and the like.

Every physiologist will read the book with great pleasure and profit; and all those who are interested in men and their work will find congenial intellectual pabulum here.

TRACY: EPILEPSY

THE WHITE SPOTS OF EPILEPSY AND OTHER PHASES OF THE DISEASE. By Edward A. Tracy, M.D. (Harvard), *School Physician, Boston Public Schools, in charge of Clinic for Nervous and Epileptic Children at Forsyth Dental Infirmary, Boston.* Boston: Richard T. Howard. 1926. Price \$2.50.

The author summarizes his conclusions as follows:

- 1.—Chronic vasoconstriction spots.
- 2.—Abnormal reflex-vasoconstriction phenomena.
- 3.—Increased tonicity of sympathetic fibres preceding convulsive seizures.
- 4.—Abnormal face reflexes.
- 5.—Hypercontent of adrenin in blood stream.

6.—Lowered content of lime in the bones. The so-called "white spots", which give title to the publication, are found by the author to be "quite constant in incipient and chronic epilepsy", varying in size from that of a pin head to that of a split pea. Stroking of the adjacent skin areas serves to define them more sharply in doubtful cases. There are a number of plates, some of which are not convincing, possibly due to faulty photography.

The time taken for development of vasomotor reactions on the two sides of the body in such cases is said to be different, one side lagging behind the other.

The cases cited in which diagnosis was made with the aid of the "white spots" might very well have been diagnosed upon other findings stated to be present, such as falls, dizzy spells and fainting, which occurred before convulsions set in.

Oenanthe crocatus in colloidal suspension is proposed as a remedy in the epilepsies since, in the author's experience, it slows vasoconstriction reflexes. Since this is not a pharmacopoeial preparation, anyone proposing to use it would do well to consult with Dr. Tracy. A few cases thus treated are related (without case histories) in which improvement or apparent recovery took place in conjunction with treatment.

Any honest attempt to solve the riddle of the epilepsies is to be commended. We could

wish, however, that this author had condensed his reading matter, for there are many repetitions. The confirmation of his findings by other workers would lend weight to his argument since it is so easy to find what one desires to find in support of one's own theories.

C. F. R.

AUSTIN-CULLEN: HYDROGEN ION CONCENTRATION

HYDROGEN ION CONCENTRATION OF THE BLOOD IN HEALTH AND DISEASE. *By J. Harold Austin and Glenn E. Cullen.* Baltimore. Williams & Wilkins Co. 1926. Price \$2.00

This is eighth of a series of monographs, under the title "Medicine Monographs".

It is designed to bring together the most important facts for the use of clinicians and workers in clinical laboratories.

To date, however, practical results are meager and are sure to be a disappointment to the clinician, there being as yet very little in hydrogen ion studies of the blood applicable to clinical diagnosis and therapy. Other recognized methods of laboratory procedure can furnish us with practically all the desired information obtainable by a determination of the hydrogen ion concentration of the blood.

This book furnishes a ready reference for the research worker or laboratory man as a compilation of the literature, but we doubt if it would be of any value to the average clinician and we question whether the average practitioner can understand it.

J. F. B.

BESANT: GOOD AND EVIL

DHARMA. *By Annie Besant.* Chicago, Ill., 826 Oakdale Ave.: The Theosophical Press. Price \$0.50.

So much diversity of opinion exists as to the nature of good and evil, and so few are prepared to back up their opinions by logical argument, that it is refreshing to find this involved subject discussed with directness, reasonableness and simplicity.

The Sanskrit word, *dharma*, which is used as a title, seems to mean something like our word, righteousness, and is explained being the "Inner nature, which has reached, in each man, a certain stage of development and unfolding. It is not an outer thing but is the law of the unfolding life, which moulds all outside it to the expression of itself."

The keynote of the entire discussion is the idea that "morality" is an individual thing and that there is no absolute right and wrong—that what may be entirely right for a savage may be entirely wrong for a civilized man, and *vice versa*: That "what is one man's meat may be another man's poison."

The formula for the solution of the great and pressing problem of right and wrong, for any particular man under any particular circumstances, lies in the determination

(after careful study) of the place in evolution which the man has reached and of the next probable step in his development. Any act, desire or thought which will facilitate the taking of that next step (that is, which is in line with evolution is "right": anything which will delay or hinder his progress "wrong". There is no other test.

This little book, while written in an easy and simple style, embodies some metaphysical considerations which will require deep and prolonged study for their full understanding and appreciation, but such study will be well repaid for, when it has been done, the student will find himself in possession of a logical and reasonable rule for the determination of his daily conduct, which should prove of inestimable value in minimizing the frictions of life and assuring steady and regular progress toward a worthy goal of endeavor.

CAMERON: DISEASES OF CHILDREN

DISEASES OF CHILDREN. A Short Introduction to Their Study. *By Hector Charles Cameron, M.A., M.D. (Cantab.), F.R.C.P. (Lond.), Physician and Physician-in-Charge of the Department for the Diseases of Children, Guy's Hospital, London and New York; Humphrey Milford, Oxford University Press.* 1926. Price \$1.75.

We all need a reference handbook, at times, and our British confreres seem to have a knack for putting a surprising amount of usable material into small compass, and doing it in a style which makes attractive reading.

The author emphasizes the fact that pediatrics covers the whole field of medicine—as applied to the child—and urges wider study and teaching of this subject.

The book contains chapters on Breast Feeding and Its Management; Sleeplessness and Nervous Unrest; Vomiting, Diarrhea and Constipation—each a chapter; Surgical Operations Upon Children; Diet; and several others. It is a well-made book, in all respects, and of handy size.

An ideal volume for the medical student, and one which every general practitioner can read with much profit and pleasure.

WOLF: LOGIC AND SCIENTIFIC METHOD

EXERCISES IN LOGIC AND SCIENTIFIC METHOD. *By A. Wolf, M.A., D.Lit., Professor of Logic and Scientific Method in the University of London.* New Edition, Revised and Enlarged. New York: The Macmillan Company. 1926. Price \$1.40.

Too few people are able to carry on a logical argument or to analyze the argument of another so as to appreciate its validity or the lack of that quality.

This little volume is a textbook for students of logic and contains a large and varied collection of exercises for the development of power and facility in the exercise of that faculty.

Few, probably, will care to undertake the strenuous mental effort necessary to deal with these problems, but those who do will find their grasp on life's affairs materially increased and their reasoning powers vastly augmented.

JOHNSON: RADIOTHERAPY

RADIOTHERAPY IN RELATION TO GENERAL MEDICINE. By Francis Hernaman-Johnson, M.D. (Aberd.), Radiologist to the French Hospital, London, and to the Margaret Street Hospital for Consumption; Physician in Charge X-Ray and Actinotherapeutic Department Croydon General Hospital, etc. London and New York: Humphrey Milford, Oxford University Press. 1926. Price \$1.75.

An excellent little volume covering, briefly, accurately and simply, a statement of what results may be expected, in various conditions, from the application of radiotherapy (x-rays and radium) and setting forth the relation between this form of treatment and other therapeutic measures.

Three chapters are devoted to important general considerations; two to the treatment of cancer; and one each to nonmalignant tumors, Graves' disease, and other endocrine disorders and tuberculosis and other diseases. The last excellent chapter deals with the combination of physical remedies.

The book is sane, conservative, optimistic and readably written and contains a surprising amount of up-to-date information in small compass. It is not a textbook, but one of the splendid Oxford Medical Handbooks.

Just the book needed by general practitioners to give them a solid foundation in this important subject.

MOULTON: MODERN READER'S BIBLE

THE MODERN READER'S BIBLE. The Books of the Bible With Three Books of the Apocrypha. Presented in Modern Literary Form. Edited, with Introductions and Notes, by Richard G. Moulton, M.A. (Camb.), Ph.D. (Penn.), Professor of Literary Theory and Interpretation in the University of Chicago. Reissue. New York and London: The Macmillan Company. 1926. Price \$2.50; with fifty full-page illustrations in color, \$3.50.

Most people approach the study of the Bible with a certain sense of awe and unfamiliarity, not only because its origin is supposed to be more directly "inspired" than are other great literary works, but because its form of presentation differs from that of any other collection of books with which we are acquainted.

Prof. Moulton has performed a conspicuous service in rearranging the text of the Revised Version (slightly modified where necessary) in such a way as to present a logical sequence of ideas and to facilitate

intelligent reading by adopting the literary forms with which we are familiar.

The arrangement of this edition shows: Bible History (Old Testament); The Prophets; Bible Poetry; Bible Philosophy (here are included the two apocryphal books, Ecclesiasticus and Wisdom of Solomon); Bible History (New Testament); and New Testament Literature.

Where the text is straight narrative it is presented as it would be in any other modern book of similar nature, with appropriate subheadings or logical division into various "stories". Where long genealogies interrupt the flow of the story, they are separated, like statistical tables, so that they may be skipped by the ordinary reader and consulted by the interested student.

There is much poetry scattered throughout the Bible, and the Book of Psalms, the Book of Lamentations and the Song of Songs are entirely poetic, with occasional explanatory notes. Here these stately and beautiful poems are arranged in modern poetic form, so as to show their true character.

In the back are 200 pages of Notes and Helps, for the assistance of students, and an index of the literary compositions making up the Modern Reader's Bible.

This volume, which we feel should be a part of every library, does much to show that the Bible is a collection of literary masterpieces, and the arrangement and presentation of the old, familiar material gives it a new vitality and interest which should stimulate many to a rereading and study of this incomparable library of Christian literature.

MEDICAL RECORD VISITING LIST, 1927

THE MEDICAL RECORD VISITING LIST OR PHYSICIANS' DIARY FOR 1927. Revised. New York: William Wood & Company. Price \$1.75 to \$2.50; Name in Gold, 25c extra; Name and Address, 50c extra.

The 1927 edition of this well-known visiting list is now ready. This handy little pocket volume is found much more trustworthy than cards or loose memoranda. The various tables of dosage, etc., have been carefully corrected in accordance with the latest revised edition of the United States Pharmacopeia. Each page for recording calls has 30 lines and is ruled for one week.

The book is bound in flexible leather substitute with gilt edges. Size 6½ by 3¼ inches. The contents include: Obstetric Calendar on Folding Chart; Approximate Equivalents of Temperature, Weight Capacity, Measure, etc.; Contagious Diseases Diagnosis Table; Treatment of Poisoning and other Emergencies; Artificial Respiration; Signs of Death; Record of Obstetrical Practice; Record of Vaccinations; Register of Deaths; Nurses' Addresses; Cash Account; and various other matters.

Medical News



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SURGEON TO KING'S HOUSEHOLD AND PRINCE OF WALES

Col. Sir H. M. Rigby, K.C.V.O., F.R.C.S., Surgeon to the King's household and Surgeon to the Prince of Wales' household. He resembles strikingly our own General John J. Pershing.

SPECIAL COURSES FOR PHYSICIANS IN TREATMENT OF VENEREAL DISEASE

Surgeon General Hugh S. Cumming has announced that the U. S. Public Health Service, as a part of its cooperative work with State health departments in the control of venereal diseases, will give special courses of training to physicians, clinicians, and health officers at its venereal disease clinic, Hot Springs, Ark.

Surgeon General Cumming states that the instruction courses which now are offered will consist of a series of lectures by the Director and the Consulting Specialists attached to the clinic, demonstrations in laboratory and treatment methods, and practical experience in the diagnosis and treatment

of syphilis and gonorrhea in various stages through participation in the routine work of the clinic. New classes of not more than ten physicians will form on the first of each month and the course will continue for a minimum of thirty days. Engraved certificates will be presented by the Public Health Service to those who satisfactorily complete the thirty-day course.

Fees are not charged for this course of instruction. The individual physician, however, will necessarily provide his own travel expense to and from Hot Springs and his living expenses while there.

Interested physicians should write to the local State health officer or to the Surgeon General, U. S. Public Health Service, Washington, D. C., for information or application blanks. Applications should be indorsed by the State Health Department in which the applicant resides before being submitted to the U. S. Public Health Service.

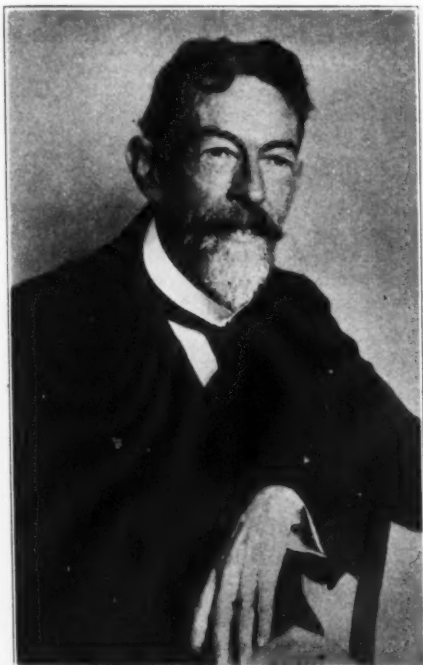


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PUBLIC HEALTH SERVICE SPECIALIST TRYING TO DISCOVER TULAR- AEMIA CURE

One of the chief activities of the U. S. Public Health Service is the study of dis-

eases of man, especially those for which no prevention or cure has been found. Among the diseases now under study is tularaemia, a fever known in certain sections of the West as deer-fly fever, and among meat-handlers as rabbit fever. It is caused by the bite of an insect, and little has heretofore been known about it. The photograph shows Dr. Edward Francis, U.S.P.H.S., who is specializing in the study of the prevention and cure of tularaemia.



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NOBEL PRIZE WINNER

Prof. Zsigmondi, teacher of Chemical Science at the German University of Gottingen, won the Nobel prize for his work in improving microscopy and research on colloids.

CLINICAL DIGEST

An interesting little publication makes its initial appearance with the issue for September, 1926, under the title of *The Clinical Digest*. While it is sponsored by a pharmaceutical house, those who throw it in the waste-basket, as being "just another

house-organ," will make a mistake, for it is well worth reading.

Incidentally, those who throw all of the so-called house-organs into the discard are losing much good material. Some of them are, to be sure, pretty thin, but there are several which deserve reading. Use discrimination.

A. M. A. 1927

This year's meeting of the American Medical Association will be held in Washington, D.C., May 16-20, 1927.

Better begin *now* to make plans to be there.

TOBACCO

The word, tobacco, as the name of the plant whose leaves are so widely smoked, is a mistaken one. It is derived from the Indian name for the *pipe* in which the leaves were smoked—*tobago*.

The herb itself was variously named by the natives. The Caribbees called it *cohiba*; the Brazillians, *petun*; the Mexicans, *piecelt*; while in Virginia it was known as *uppowoc*.



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FIRST AMERICAN WOMAN PHYSICIAN LICENSED IN TOKYO

The examinations for physicians in Japan are very rigid. Dr. E. Eliot is the first American woman who has ever been licensed

to practice medicine in Tokyo. She specializes in pediatrics and is here shown, with her Japanese nurse, examining a child.

CHICAGO TUBERCULOSIS SANITARIUM

Beginning Monday, October 25, 1926, the Central Office of the City of Chicago Municipal Tuberculosis Sanitarium will be located at 2049 West Washington Boulevard. Telephone Seeley 4110.

AMERICAN STOMATOLOGICAL ASSOCIATION NEWS

Due to the increased activities of the International Stomatological Association in the United States, of which he is the American representative, Dr. Alfred J. Asgis has resigned from the office of General Secretary of the American Stomatological Association. Dr. Robert H. Rose succeeds Dr. Asgis as General Secretary from November 19, 1926, and all communications pertaining to the American Stomatological As-

sociation should be addressed to him at 30 East 40th Street, New York City. All communications pertaining to the International Stomatological Association should be addressed to Dr. Alfred J. Asgis, Adjunct-General Secretary, A. S. I., 1265 Walton Avenue, New York City.

DR. AUGUST M. SARTORIUS

Dr. August Matern Sartorius, president of Reed and Carnrick, passed away November 2, 1926, in the thirty-eighth year of his age.

Dr. Sartorius was graduated from the Brooklyn Polytechnic Institute as a Bachelor of Science, in chemistry, in 1908, and from Yale University as a Doctor of Medicine in 1912. He became president of Reed and Carnrick in 1915.

At the time he was taken ill, the doctor was engaged in investigations of products representing the ovarian and testicular hormones, and while this work is being carried on by others, his taking off will be a distinct loss to medicine and to pharmacy.

EVERY life is its own excuse for being, and to deny or refute the untrue things that are said of you is an error in judgment. All wrong recoils upon the doer, and the man who makes wrong statements about others is himself to be pitied, not the man he vilifies. It is better to be lied about than to lie. At the last no one can harm us but ourselves.

—Elbert Hubbard.

